SifoWorks™

O2Security™

SifoWorks U-Series 4.05

User Manual

OD7300UME01–4

Notice

No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without receiving written permission from O_2Security.

O_2Security and its subsidiaries reserve the right to make changes to their documents and/or products or to discontinue any product or service without notice, and advise customers to obtain the latest version of relevant information to verify, before placing orders, that information being relied on is current and complete. All products are sold subject to the terms and conditions of sale supplied at the time of order acknowledgement, including those pertaining to warranty, patent infringement, and limitation of liability.

O_2Security warrants performance of its products to the specifications applicable at the time of sale in accordance with O_2Security's standard warranty. Testing and other quality control techniques are utilized to the extent O_2Security deems necessary to support this warranty. Specific testing of all parameters of each device is not necessarily performed, except those mandated by government requirements.

Customer acknowledges that O_2Security products are not designed, manufactured or intended for incorporation into any systems or products intended for use in connection with life support or other hazardous activities or environments in which the failure of the O_2Security products could lead to death, bodily injury, or property or environmental damage ("High Risk Activities"). O_2Security hereby disclaims all warranties, and O_2Security will have no liability to Customer or any third party, relating to the use of O_2Security products in connection with any High Risk Activities.

Any support, assistance, recommendation or information (collectively, "Support") that O_2Security may provide to you (including, without limitation, regarding the design, development or debugging of your circuit board or other application) is provided "AS IS." O_2Security does not make, and hereby disclaims, any warranties regarding any such Support, including, without limitation, any warranties of merchantability or fitness for a particular purpose, and any warranty that such Support will be accurate or error free or that your circuit board or other application will be operational or functional. O_2Security will have no liability to you under any legal theory in connection with your use of or reliance on such Support.

Information in this document is subject to change without notice.

©2008 O_2Security Ltd., an O_2Micro International Ltd. company (NASDAQ: OIIM, SEHK: 0457). All rights reserved. O_2Security is a trademark and SifoWorks is a registered trademark of O_2Micro International Ltd.

Table of Contents

Product Overview 1
- What is SifoWorks UTM? 1
- SifoWorks U-series Security Mechanisms 2
- Device Ports and LEDs 4
- Differences in SifoWorks U-Series models 14

Getting Started 17
- Logging into the System 17
- Logging Out from the System 18

1. Administrator Management 19
   - 1.1 Administrator Accounts 19
   - 1.2 Permitted Login IPs 21

2. Basic System Configurations 23
   - 2.1 Basic Settings 23
   - 2.2 System Date and Time Settings 27
   - 2.3 Language Settings 28
   - 2.4 Software Update 28
   - 2.5 SNMP 29

3. Network Settings 31
   - 3.1 SifoWorks U-series Operating Modes 31
   - 3.2 Configuring the Physical Interfaces 33
   - 3.3 Configuring Multiple Subnets 39
   - 3.4 Route Table 41
   - 3.5 Setting DHCP 42
   - 3.6 Dynamic DNS 43
   - 3.7 Host Table 44

4. Firewall Policy Management 45
   - 4.1 Outgoing Policies 45
   - 4.2 Incoming Policies 49
   - 4.3 WAN to DMZ Policies 52
   - 4.4 LAN to DMZ Policies 52
   - 4.5 DMZ to WAN Policies 55
   - 4.6 DMZ to LAN Policies 55
   - 4.7 Application Examples 56

5. Policy Object Management 57
   - 5.1 Address Objects 58
   - 5.2 Service Objects 63
   - 5.3 Schedule Objects 66
   - 5.4 Quality of Service 68
   - 5.5 Content Blocking Objects 71
   - 5.6 Application Blocking 77

6. Authentication 81
6.1 Internal Authentication Server Settings 81
6.2 Using an External RADIUS Server 82
6.3 Using an External POP3 Server 84
6.4 LDAP Server 85
6.5 Authentication Users 87
6.6 Authentication User Groups 88
7. Virtual Service 91
7.1 Mapped IP 91
7.2 One-to-Many Virtual Server Mappings 94
8. IPsec VPN 101
8.1 One-Step IPsec VPN 101
8.2 VPN Wizard 102
8.3 IPsec AutoKey 103
8.4 CA Certificates 117
8.5 Local Certificates 117
8.6 PPTP Server 119
8.7 PPTP Client 121
8.8 Trunk 129
9. Policy and Objects - More Application Examples 131
9.1 Application Example 1 131
9.2 Application Example 2 133
9.3 Application Example 3 135
9.4 Application Example 4 137
10. SSL VPN 143
10.1 Basic SSL VPN Configuration 143
10.2 SSL VPN Hardware Authentication 146
10.3 SSL VPN Connection Status 146
11. Mail Security 147
11.1 Configuring the Basic Settings 147
11.2 Mail Relay 149
11.3 Mail Account 153
11.4 Mail Notice 156
11.5 Anti-Spam 163
11.6 Anti-Virus 186
11.7 Mail Report 194
12. Mail Archive and Audit 197
12.1 Mail Archive and Audit Settings 197
12.2 Mail Audit Rules 198
12.3 Archived Mails 203
13. Intrusion Detection and Prevention 205
13.1 Basic IDP Settings 205
13.2 IDP Signatures 207
13.3 IDP Log Report 210

14. Anomaly Flow IP 213
14.1 Basic Settings 213
14.2 Anomaly Flow IP Log 214
15. Advanced Options 215
15.1 Inbound Balance 215
15.2 High Availability 225
15.3 Co-Defense System 229
16. System Monitoring 233
16.1 Logs 233
16.2 Report 239
16.3 Statistics 242
16.4 Diagnostic Tools 245
16.5 Wake on LAN 246
16.6 System Status 246

Product Overview

This chapter describes the network ports, LEDs and performance indexes for each SifoWorks UTM (Unified Threat Management), U-Series model. It also introduces the various functions available in the SifoWorks UTM product family and the differences between each UTM model.

What is SifoWorks UTM?

SifoWorks UTM (Unified Threat Management) is a comprehensive network security solution, integrating anti-virus, intrusion detection and prevention (IDP), IDP co-defense systems, QoS bandwidth management, bi-directional load balancing, anti-spam, content filtering, statistical reports and traffic analysis charts and SSL VPN functions within a single device.

The SifoWorks UTM product family comprises of the following models:

- SifoWorks U100
- SifoWorks U200/200A
- SifoWorks U210/210A
- SifoWorks U310/310A
- SifoWorks U500/500A
- SifoWorks U510/510A

This manual is valid for UI version 4.05 for all models in the SifoWorks UTM product family. The term “SifoWorks U-series” will be used to refer to all SifoWorks UTM models in the following parts of this manual.

SifoWorks U-series Security Mechanisms

SifoWorks U-series comprises of several security mechanisms including:

- Anti-Virus

SifoWorks U-series is able to perform real-time scans on traffic of various protocols such as HTTP, FTP, POP3 and SMTP etc, protecting the internal network from virus, worms or other malicious software that may be embedded within web pages or emails.

SifoWorks U-series supports two anti-virus engines: Clam and Sophos. The Clam engine can be automatically updated an unlimited number of times, ensuring the accuracy of the system's anti-virus scanning mechanism.

- Intrusion Detection and Prevention (IDP)

SifoWorks U-series' IDP function is equipped to detect and block up to 2900 well known attacks. The system's IDP definition database can be updated online free of charge. Administrators can also add customized attack definitions into the system, adapting the system to recognize ever-changing threats.

The system can be set up to notify users when certain attacks occur and provide detailed statistical reports to facilitate the tracing of each attack source.

- Co-operative Defense Mechanism

When an attack is detected (anomaly traffic flow), the system can co-operate with a third party router/switch deployed within the internal network to block traffic from the corresponding source IP. Thus, prompt action is taken to block large number of attack packets from being sent into the internal network, preventing such attacks from crippling the network.

- QoS Bandwidth Management

SifoWorks U-series provides a quality of service (QoS) function, managing bandwidth utilization by specifying maximum and guaranteed bandwidth allocation to certain application services and servers. The system is also equipped with a packet priority queue capability.

Administrators can also effectively allocate network resources by limiting the maximum download bandwidth and session number for each source IP.

- Bi-directional Load Balancing

SifoWorks U-series is equipped with powerful traffic load balancing capabilities. For inbound traffic, the system is able to balance traffic load for internal web, mail and other specific servers. For outbound traffic, the system supports multi-ISP links and various load balancing modes. Administrators can also define policy routes, effectively managing bandwidth utilization while ensuring network stability and reliability.

- Anti-spam Mail Filtering

SifoWorks U-series' comprehensive anti-spam function is easily adaptable to the existing network structure through its two working modes: transparent mode and forwarding mode. Multiple scanning mechanisms such as Bayesian filtering, fingerprint database, network RBL (Real-time Blackhole list) database, greylist etc. Users can also customize mail filtering rules and set up their white/blacklists.

Through the use of mail subject headings and notification mails, users can check the list of detected spam mails, retrieving any mails that may have been wrongly detected as spam. An automatic training mechanism is also incorporated, allowing the system to automatically learn from such errors, greatly enhancing the accuracy of spam mail detection.

With SifoWorks U-series unique auto-training mechanism, the accuracy of the system's spam mail detection can reach up to 99% or above without administrators having to continuously add new keywords or spam mail filter rules.

- Content Filtering

SifoWorks U-series can be set up to recognize and restrict traffic from commonly used IM (instant messaging) or P2P (peer-to-peer) applications, preventing such traffic from hogging network bandwidth or causing security loopholes. These include MSN, QQ, Skype, ICQ, BT, eDonkey etc. Thus, administrators can easily manage the usage of such software within the network.

Administrators can filter and block HTTP and FTP traffic contents, restrict the downloading or uploading of specific types of files and block scripts such as ActiveX, Java, and Cookies etc, that are embedded within web pages.

- Statistical Reports and Traffic Analysis Charts

Various reports and logs can be generated by the system including anti-virus logs, IDP logs, anti-spam statistical reports, interface traffic analysis charts (MRTG – Multi Router Traffic Grapher) and Top N statistic charts etc.

The system can also send SNMP and email alert notifications, updating administrators on device status and facilitating auditing of specific network events.

- Built-in SSL VPN

Aside from IPsec VPN and PPTP VPN, SifoWorks U-series also provides SSL VPN, a most convenient remote access solution to meet the growing demands of a mobile office. Remote users can connect to and access internal resources via a standard web browser, greatly reducing administrators' maintenance workload while raising the efficiency of the enterprise's employees.

Device Ports and LEDs

This section introduces the ports and LEDs for each model in the SifoWorks U-series product family.

SifoWorks U100

Device Box

The front panel of SifoWorks U100 is drawn in the figure below

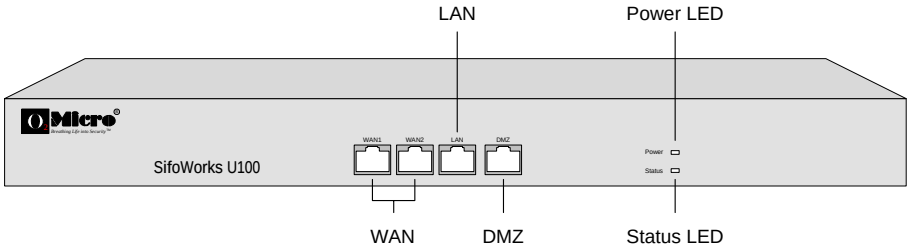


Figure 1

The rear panel of SifoWorks U100 is drawn in the figure below

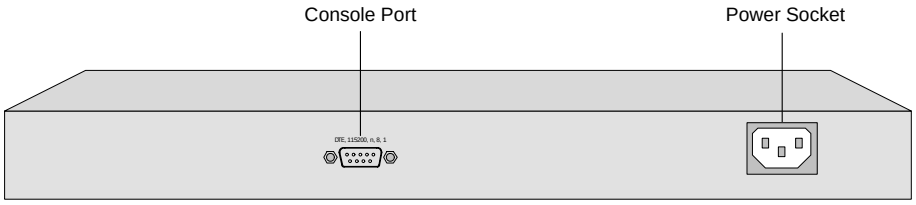


Figure 2

Device Ports

The table below lists the various ports located on the front panel of SifoWorks U100.

Table 1 SifoWorks U100 Ports

Name	Explanation	No.	Format
WAN1, WAN2	10M/100M self-adaptive Ethernet ports. Connected to external network	2	RJ-45
LAN	10/100M self-adaptive Ethernet port. Connected to the internal network.	1	RJ-45
DMZ	10/100M self-adaptive Ethernet port. Connected to the enterprise's demilitarized zone (where core servers are located)	1	RJ-45
Management Console Port	RS232 serial port. A serial cable is used to connect this port to an administrative PC. SifoWorks can then be configured from this PC via a hyper-terminal program The management console port is located at the back panel of the SifoWorks U100 device.	1	DB-9

Device LEDs

The table below describes the LED indicator lights located on the front panel of SifoWorks U100.

Table 2 SifoWorks U100 LEDs

Name	Color	Status	Explanation
Power LED	Green	On	Device is receiving power from the power source
		Off	Device is switched off or not receiving power from the power source normally
Status LED	Green	Flickering	System is booting up
		Off	System is operating normally or switched off.

SifoWorks U200/U200A

The front panel of SifoWorks U200 and SifoWorks U200A are identical except for the device name label. The figure below shows the front panel diagram of SifoWorks U200.

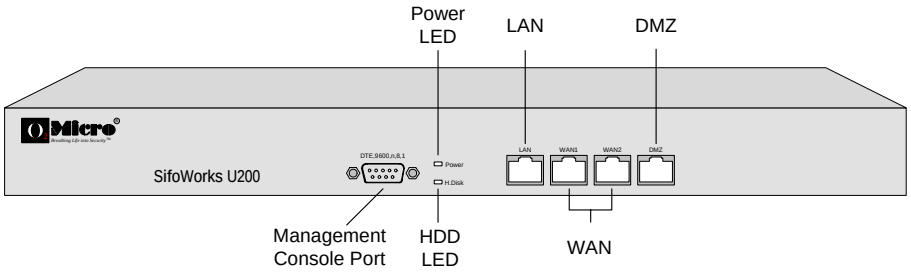


Figure 3

Device Ports

The table below describes the various ports located on the front panel of SifoWorks U200/U200A.

Table 3 SifoWorks U200/U200A Ports

Name	Explanation	No.	Format
WAN1, WAN2	10M/100M self-adaptive Ethernet ports. Connected to external network	2	RJ-45
LAN	10/100M self-adaptive Ethernet port. Connected to the internal network.	1	RJ-45
DMZ	10/100M self-adaptive Ethernet port. Connected to the enterprise's demilitarized zone (where core servers are located)	1	RJ-45
Management Console Port	RS232 serial port. A serial cable is used to connect this port to an administrative PC. SifoWorks can then be configured from this PC via a hyper-terminal program	1	DB-9

Device LEDs

The table below describes the LED indicator lights located on the front panel of SifoWorks U200/U200A.

Table 4 SifoWorks U200/U200A LEDs

Name	Color	Status	Explanation
Power LED	Green	On	Device is receiving power from the power source
		Off	Device is switched off or not receiving power from the power source normally
H.Disk LED	Orange	Flickering	System is currently reading from /writing to the hard disk
		Off	System is currently not performing any read/write operation on the hard disk.

SifoWorks U210/U210A

Device Box

The SifoWorks U210 and SifoWorks U210A device box are identical except for the device name label. The figure below shows the front panel diagram of SifoWorks U210.

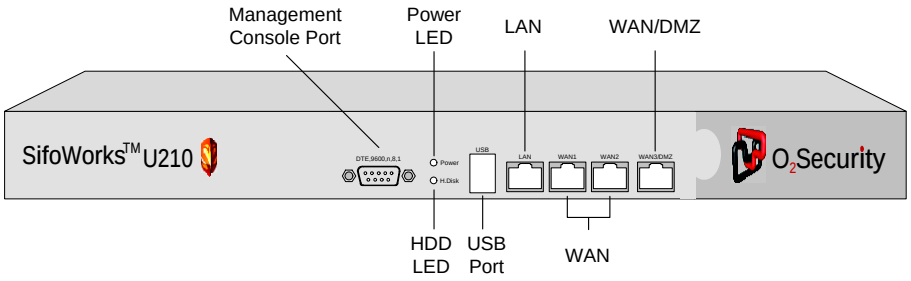


Figure 4 SifoWorks U210 Front Panel

Device Ports

The various ports located on the front panel of SifoWorks U210/U210A are described below.

Table 5 SifoWorks U210/U210A Ports

Name	Explanation	No.	Format
WAN1, WAN2	10M/100M/1000M self-adaptive Ethernet ports. Connected to external network	2	RJ-45
LAN	10/100M/1000M self-adaptive Ethernet port. Connected to the internal network.	1	RJ-45
WAN3/DMZ	10/100M/1000M self-adaptive Ethernet port. Can be connected to the enterprise's demilitarized zone (where core servers are located) or the external network	1	RJ-45
USB	Reserved for future use	2	USB
Management Console Port	RS232 serial port. A serial cable is used to connect this port to an administrative PC. SifoWorks can then be configured from this PC via a hyper-terminal program	1	DB-9

Device LEDs

This table describes the LED indicator lights located on the front panel of SifoWorks U210/U210A.

Table 6 SifoWorks U210/U210A LEDs

Name	Color	Status	Explanation
Power LED	Green	On	Device is receiving power from the power source
		Off	Device is switched off or not receiving power from the power source normally
H.Disk LED	Orange	Flickering	System is currently reading from /writing to the hard disk
		Off	System is currently not performing any read/write operation on the hard disk.

SifoWorks U310/U310A

Device Box

The SifoWorks U310 and SifoWorks U310A device box are identical except for the device name label. The figure below shows the front panel diagram of SifoWorks U310.

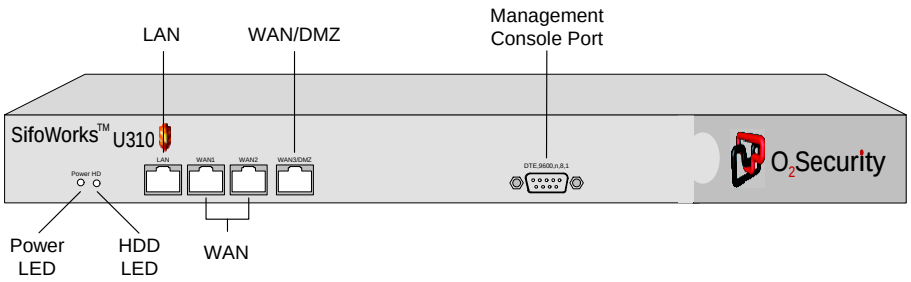


Figure 5 SifoWorks U310 Front Panel

Device Ports

The table below describes the various ports located on the front panel of SifoWorks U310/U310A.

Table 7 SifoWorks U310/U310A Ports

Name	Explanation	No.	Format
WAN1, WAN2	10M/100M/1000M self-adaptive Ethernet ports. Connected to external network	2	RJ-45
LAN	10/100M/1000M self-adaptive Ethernet port. Connected to the internal network	1	RJ-45
WAN3/DMZ	10/100M/1000M self-adaptive Ethernet port. Can either be connected to the enterprise's demilitarized zone (where core servers are located) or an external network	1	RJ-45
Management Console Port	RS232 serial port. A serial cable is used to connect this port to an administrative PC. SifoWorks can then be configured from this PC via a hyper-terminal program	1	DB-9

Device LEDs

The LED indicator lights located on the front panel of SifoWorks U310/U310A are described in the table below.

Table 8 SifoWorks U310/U310A LEDs

Name	Color	Status	Explanation
Power LED	Green	On	Device is receiving power from the power source
		Off	Device is switched off or not receiving power from the power source normally
H.Disk LED	Orange	Flickering	System is currently reading from /writing to the hard disk
		Off	System is currently not performing any read/write operation on the hard disk.

SifoWorks U500/U500A

Device Box

The SifoWorks U500 and SifoWorks U500A device box are identical except for the device name label. The figure below shows the front panel diagram of SifoWorks U500.

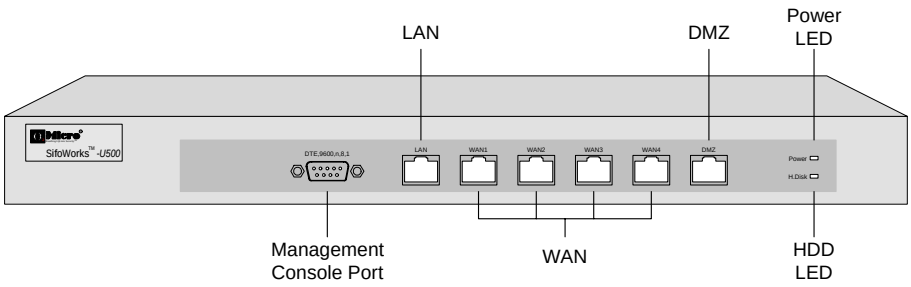


Figure 6 SifoWorks U500 Front Panel

Device Ports

The table below describes the various ports located on the front panel of SifoWorks U500/U500A.

Table 9 SifoWorks U500/U500A Ports

Name	Explanation	No.	Format
WAN1, WAN2, WAN3, WAN4,	10M/100M/1000M self-adaptive Ethernet ports. Connected to external network	4	RJ-45
LAN	10/100M/1000M self-adaptive Ethernet port. Connected to the internal network.	1	RJ-45
DMZ	10/100M/1000M self-adaptive Ethernet port. Connected to the enterprise's demilitarized zone (where core servers are located)	1	RJ-45
Console Port	RS232 serial port. A serial cable is used to connect this port to an administrative PC. SifoWorks can then be configured from this PC via a hyper-terminal program	1	DB-9

Device LEDs

The table below describes the LED indicator lights located on the front panel of SifoWorks U500/U500A.

Table 10 SifoWorks U500/U500A LEDs

Name	Color	Status	Explanation
Power LED	Green	On	Device is receiving power from the power source
		Off	Device is switched off or not receiving power from the power source normally
H.Disk LED	Orange	Flickering	System is currently reading from /writing to the hard disk
		Off	System is currently not performing any read/write operation on the hard disk.

SifoWorks U510/U510A

Device Box

The SifoWorks U510 and SifoWorks U510A device box are identical except for the device name label. The figure below shows the front panel diagram of SifoWorks U510.

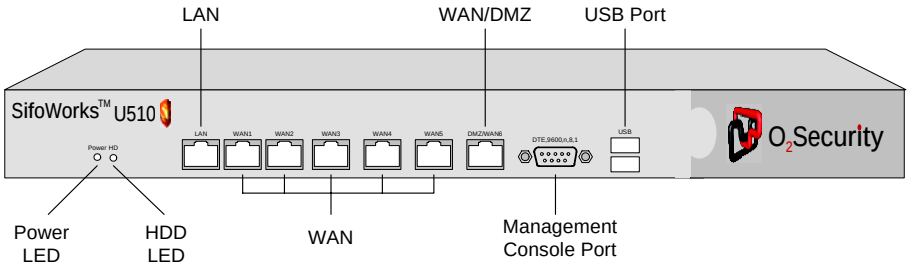


Figure 7 SifoWorks U510 Front Panel

Device Ports

The table below describes the various ports located on the front panel of SifoWorks U510/U510A.

Table 11 SifoWorks U510/U510A Ports

Name	Explanation	No.	Format
WAN1, WAN2, WAN3, WAN4, WAN5	10M/100M/1000M self-adaptive Ethernet ports. Connected to external network	5	RJ-45
LAN	10/100M/1000M self-adaptive Ethernet port. Connected to the internal network.	1	RJ-45
DMZ	10/100M/1000M self-adaptive Ethernet port. Connected to the enterprise's demilitarized zone (where core servers are located)	1	RJ-45
USB	Reserved for future use	2	USB
Console Port	RS232 serial port. A serial cable is used to connect this port to an administrative PC. SifoWorks can then be configured from this PC via a hyper-terminal program	1	DB-9

Device LEDs

The table below describes the LED indicator lights located on the front panel of SifoWorks U510/U510A.

Table 12 SifoWorks U510/U510A LEDs

Name	Color	Status	Explanation
Power LED	Green	On	Device is receiving power from the power source
		Off	Device is switched off or not receiving power from the power source normally
H.Disk LED	Orange	Flickering	System is currently reading from /writing to the hard disk
		Off	System is currently not performing any read/write operation on the hard disk.

Differences in SifoWorks U-Series models

The SifoWorks UTM product family comprises of models each aiming to best cater to the needs of enterprises of varying sizes. Other than differences in hardware capacities such as supporting different number of users, sessions etc, software functionality differences also exist between the different models. Thus, the SifoWorks UTM family provides flexibility of choice to enterprises to select the model best suited to its needs.

Table 13 below lists the main function groups that are not available on all models of the SifoWorks UTM product family.

Table 13 Function Group Differences between Models

Function	Not Available On	Description	Reference
LDAP Authentication Servers	U100	This function allows the system to use LDAP authentication servers.	Section "6.4 LDAP Server"
IPsec VPN Wizard	U100	The VPN wizard provides administrators with a simple method of configuring a basic IPsec VPN.	Section "8.2 VPN Wizard"
CA/Local Certificates	U100, U200, U200A, U210, U210A, U310, U310A	Certificates can be used to authenticate VPN users attempting to connect to the system.	Section "8.4 CA Certificates" Section "8.5 Local Certificates"
SSL VPN	U100	Provides users with a web-based SSL VPN solution	Chapter "10 SSL VPN"
Mail Accounts	U100	Administrators can manage which email accounts are to be scanned for spam and virus	Section "11.3 Mail Account"
Mail Notice	U100	This function is to set up the system to send spam/virus notification mails periodically to specific email addresses.	Section "11.4 Mail Notice"

Function	Not Available On	Description	Reference
Anti-Spam Personal Rule	U100	Personal rule function allows end-users to manage their own white/blacklist emails to facilitate spam mail filtering.	Section "11.4.1 Personal Rule" Section "11.5.3 Spam Rules – Personal"
Mail Reports	U100	Statistical reports based on network mail activities will be generated by this function. These reports can also be periodically sent to specified email addresses.	Section "11.7 Mail Report"
Mail Archive/Audit	U100, U200, U200A, U210, U210A	Administrators use this function to manage rules determining what actions to perform on certain mails, time period to store archived mails etc.	Chapter "12 Mail Archive and Audit"
Advanced Functions	U100	Including: inbound load balancing, high availability and co-defense systems	Chapter "15 Advanced Options
Virus Logs	U100	Log list of all virus packets detected by the system.	Section "16.1.5 Virus Logs"
Diagnostic Tools	U100	Includes Ping and Traceroute tools for network diagnostic purposes.	Section "16.4 Diagnostic Tools"
Sessions Information	U100	This function generates information on all online sessions for monitoring purposes.	Section "16.6.5 Sessions Information "

Getting Started

The SifoWorks U-series system supports Web-based administration, enabling you to configure the system from different operating systems simply through a standard web browser.

Logging into the System

Step 1: Activate your preferred web browser (such as Internet Explorer, Firefox etc.).

Step 2: Enter the system's IP address into the address bar.

You can use the HTTP (http://IP) or HTTPS (https://IP) protocols to access the Web UI if enabled in the system's interface configuration. Please refer to section "3.2 Configuring the Physical Interfaces" for details on enabling access through the required protocol. Note that HTTPS is not supported by the SifoWorks U100 system.

Note: *On your first login, you should connect to the device's LAN interface with default IP address 192.168.1.1. You can then proceed to configure the system for administrator access via the other interfaces.*

Step 3: At the prompt, login with your administrator account **username** and **password**. Upon successful login, you will be greeted with the system's web interface as shown in the figure below:

Figure 1

You can navigate the system functions via the menu displayed on the left column of the interface.

Logging Out from the System

For security reasons, you should logout of the system after you have completed your configuration operations. From the left menu, select **"System > Logout > Logout"**. At the prompt, confirm that you want to logout of the system.

You will need to restart your browser if you wish to re-login.

Chapter

1

Administrator Management

1.1 Administrator Accounts

SifoWorks U-series devices come with a default administrator account with the **username** "admin" and **password** "admin". This account cannot be deleted from the system. For security purposes, we recommend that you change the default password of this account. Please refer to section "1.1.2 Changing an Account Password" for information on changing account password.

The SifoWorks U-series default administrator account acts as a main administrator with read-write authority. This means that this administrator account is authorized to perform configurations on the system.

You can add multiple administrator accounts. There are two types of administrators in the system. Sub-administrators are assigned with a read authority. Hence, these administrators are only authorized to view the system settings and access the "Monitor" function. Main administrators are authorized to access all functions in the system.

Note: *SifoWorks U100 assigns read-write access to the default administrator only. All other administrators added can only be assigned with read authority (sub administrators).*

From the left menu bar, select **"System > Administration > Admin"** to view the list of administrators. You can edit or delete an account by clicking the **[Modify]** or **[Remove]** button corresponding to an administrator account in the list respectively.

1.1.1 Adding a New Administrator Account

Step 1: From the bottom of the list, click **[New Sub Admin]** to add a new administrator account.

Step 2: Enter the **sub admin name** and account **password** in the next screen.

Step 3: Retype the password to **confirm**.

Step 4: Enable the options **write access** and **view log & report privilege** to add the account as a main administrator account. These 2 options are not available for SifoWorks U100 devices.

Step 5: Click **[OK]** to add the new administrator account.

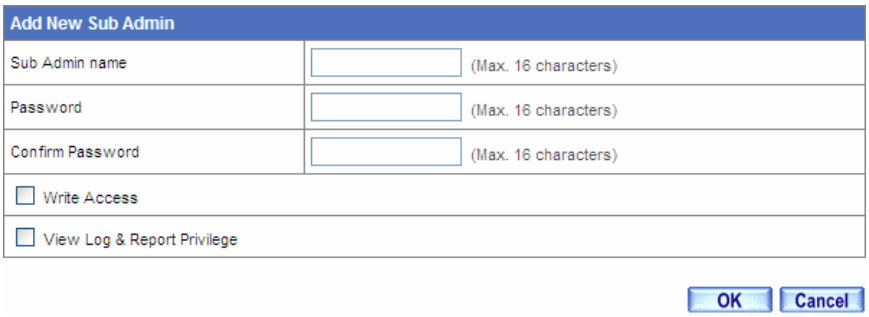


Figure 1.1

1.1.2 Changing an Account Password

Step 1: From the administrator list, click the **[Modify]** button corresponding to the account you want to edit.

Step 2: In the next screen, enter the account's current **password** and the **new password** to change to.

Step 3: Retype the new password to **confirm**.

Step 4: Click **[OK]** to save the changes.

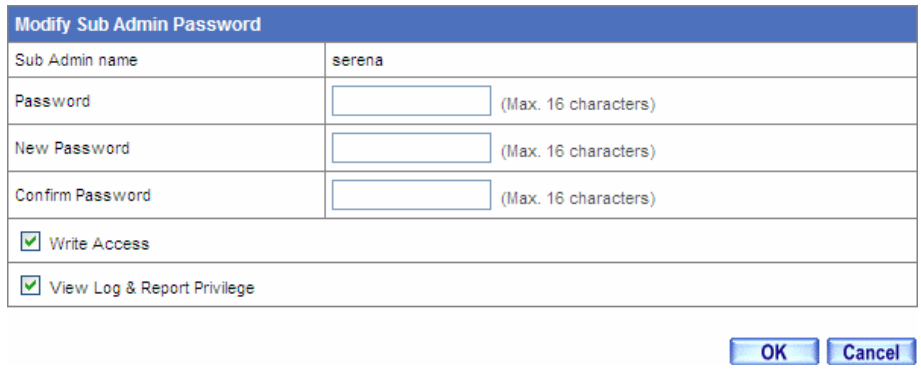


Figure 1.2

1.2 Permitted Login IPs

SifoWorks U-series allows the main administrator to restrict the IP addresses from which administrators can log into the system.

Select **"System > Administration > Permitted IPs"** to view the list of permitted IP addresses. You can edit or delete permitted IP addresses by clicking the appropriate **[Modify]** or **[Remove]** buttons respectively.

1.2.1 Adding Permitted IP Addresses

Step 1: Click **[New Entry]** from the bottom of the list to display the Add permitted IP address UI.

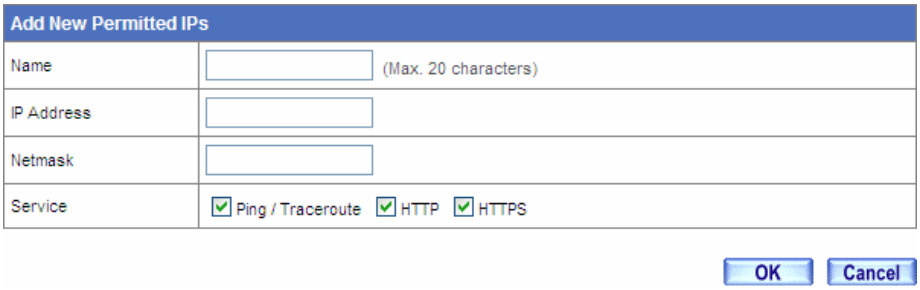


Figure 1.3

Step 2: Enter the **name**, allowed **IP address** and the corresponding **netmask**.

Step 3: Select whether to allow users logged in through this IP address to access the **Ping / Traceroute**, **HTTP** and **HTTPS** services.

Note: *You must disable **Ping / Traceroute**, **HTTP** and **HTTPS** system management services from the "Interface" function only after setting the Permitted IPs. Please refer to section "3.1 SifoWorks U-series Operating Modes" for configuration details.*

The HTTPS protocol is not supported by the SifoWorks U100 system. Traceroute is also not supported on SifoWorks U100.

Chapter

2

Basic System Configurations

2.1 Basic Settings

Select **"System > Configure > Setting"** from the left menu. Here, the main administrator can set up a number of basic system settings described in the following sections.

2.1.1 Importing/Exporting System Settings

Export System Settings

Click the **[Download]** button to export the current configurations into a file to be stored in the local disk.

Import System Settings

In the "SifoWorks Configuration" portion on the top of the page, you can import a previously saved configuration file into the system. Click **[Browse...]** to select the file to import and click **[OK]** from the bottom of the page.

Note: *The system will be automatically rebooted after importing the configuration file. A warning message will be displayed and users will be able to re-login to the system in about 2 minutes.*

Reset to Factory Default Setting

Select **Reset system to factory setting** and click **[OK]** from the bottom of the page to reset all system configurations to the default factory setting.

Format Device Hard Disk

Select **Format Hard Disk** and click **[OK]** from the bottom of the page to format the SifoWorks U-series' hard disk.

Note: *SifoWorks U100 is not equipped with an in-built hard disk. Hence, this configuration option is not available for SifoWorks U100 systems.*

2.1.2 Email Alert Notification Settings

This function enables the system to send email alerts informing administrators of detected attacks or network emergency conditions.

Step 1: In the "System Name Setting" portion, enter your **company name** and the **device name** used to identify this SifoWorks U-series device. For SifoWorks U100 devices, only the **device name** can be configured.

Step 2: In the "E-mail Setting" portion, select **enable E-mail alert notification**.

Step 3: Configure the corresponding parameters including the **sender address**, **SMTP server** address and up to 2 recipient e-mail addresses.

If you are using a SifoWorks U100 device, please skip steps 4 and 5 as these parameters are not available on the device.

Step 4: If the system must be authenticated by the SMTP server, **enable SMTP server authentication**.

Step 5: Enter the **username** and **password**.

Step 6: Click **[Mail Test]** to check that the configured recipients are able to receive the alert notification emails.

Step 7: Click **[OK]** from the bottom of the page to save the setting.

2.1.3 Reboot System

From the bottom of the page, click **[Reboot]** to restart the SifoWorks U-series device.

2.1.4 DMZ Port Switch

Select whether to **enable DMZ port switch to WAN port**. You can use the DMZ port as a WAN port when this is enabled. Note that the system will reboot when you click **[OK]** to save this setting. This option is not available on SifoWorks U100.

2.1.5 Basic Network Settings

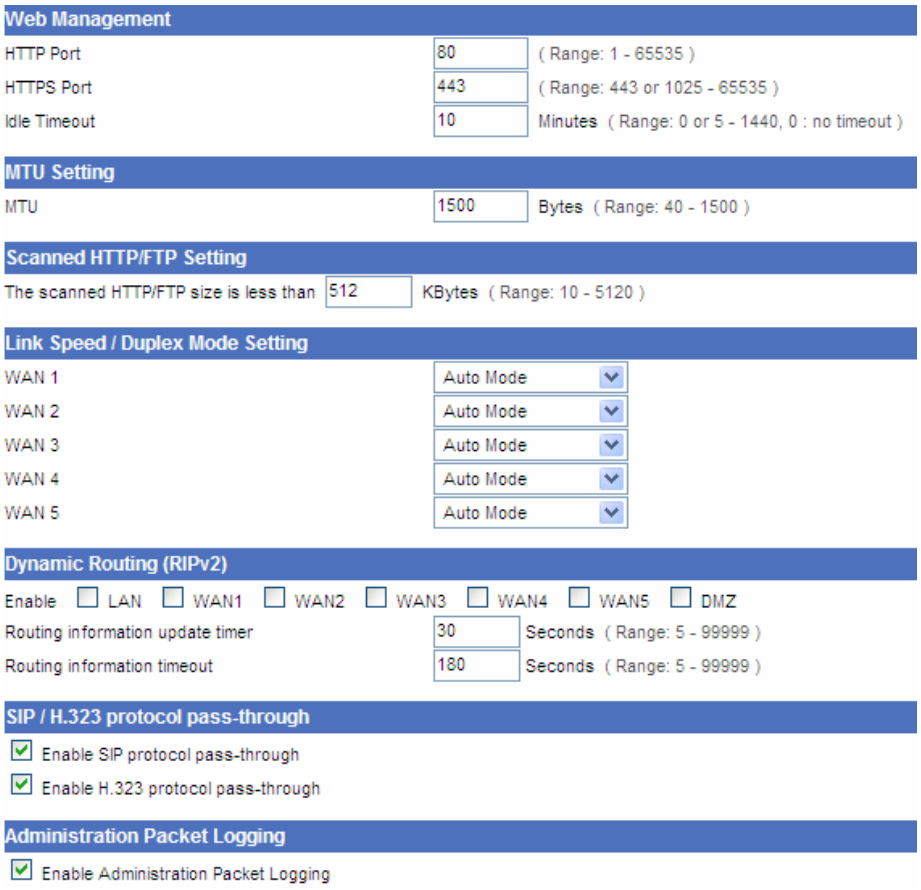


Figure 2.1

"Web Management (WAN Interface)"

Here you can change the **HTTP** and **HTTPS port** numbers. Note that when this is modified, the administrator must change his browser's port number accordingly when attempting to enter the SifoWorks U-series WebUI (for example, http://192.168.1.1:8080). You can also set the **idle timeout** for administrator logins.

Note: ***HTTPS Port*** *and* ***Idle timeout*** *parameters are not available for SifoWorks U100.*

"MTU Setting"

You can edit the maximum size of a network packet here.

"Scanned HTTP/FTP Setting"

Specify the size of HTTP/FTP files that are scanned by the system. This parameter is not available for configuration on SifoWorks U100.

"Link Speed/Duplex Mode Setting"

Select the link speed and the duplex mode (full/half) for each of the WAN interfaces.

"Dynamic Routing (RIPv2)"

Step 1: Select the ports to **enable** dynamic routing on. With this enabled, the system will route packets based on the RIP protocol.

Step 2: Set the **routing information update timer** and **timeout**.

"SIP/H.323 Protocol pass-through"

Select whether to **enable SIP** (Session initiation protocol) pass-through and/or **H.323 protocol pass-through**. If enabled, all SIP/H.323 packets will be processed before forwarded to their respective destinations. Note that only SIP protocol pass-through is supported on SifoWorks U100.

"Administration Packet Logging"

Select whether to **enable** logging of administration packets. When this is enabled, SifoWorks U-series will record all packets with SifoWorks U-series' IP address as the source or destination IP address. This record can be viewed by selecting **"Monitor > Log > Event"** from the left menu. Please refer to section "16.1 Logs" for more information.

Click **[OK]** from the bottom of the page to save the configurations.

2.1.6 List Display Per Page

From the bottom of the **"System > Configure > Setting"** interface, you can select the number of entries to be displayed per page of a list on the interface. Click **[OK]** from the bottom of the page to save the setting.

This parameter is not available on SifoWorks U100.

2.2 System Date and Time Settings

From the left menu, select **"System > Configure > Date/Time"** to set up the device's date and time. You can choose to synchronize the device's clock with either an Internet Time Server or the administrator's system clock.

Synchronize system clock with an Internet Time Server

Select to **synchronize system clock with an Internet time Server** and set up the parameters accordingly including:

- **GMT offset**. Click the **[Assist]** link to view a list of countries and their respective GMT offset value.
- If daylight saving is enforced, select to **enable daylight saving** and specify the dates during which daylight saving is in effect.
- **IP** address of the time server. Click the **[Assist]** link to view a list of available time servers and their IP addresses.
- Time interval for updating the system clock.

Click **[OK]** to save the changes.

Synchronize device's clock with administrator PC's system clock

Click the **[Sync]** button next to **Synchronize system clock with this client** to synchronize SifoWorks U-series' clock with the system clock of the administrator's PC.

2.3 Language Settings

Step 1: Select **"System > Configure > Language"** from the left menu. The SifoWorks U-series system can be displayed in 1 of 3 languages including English, Simplified Chinese and Traditional Chinese.

Step 2: Select your desired language.

Step 3: Click **[OK]** to change the UI display to the selected language.

2.4 Software Update

You can update the system's software using the appropriate update files here.

Step 1: Select **"System > Administration > Software Update"**.

Step 2: Click **[Browse…]** and select the upgrade file.

Step 3: Click **[OK]** to begin the update.

Note: *The update process takes roughly 3 minutes. The system will be automatically rebooted after the update is completed.*

We strongly recommend that you do not turn off the PC or leave the WebUI during this period as it may result in unexpected system errors.

2.5 SNMP

Using the SNMP function, the system can be configured to send notifications to the specified recipients when system events such as attack alerts occur. This keeps the administrators informed of events happening in the network.

Select **"System > Configure > SNMP"** to view the current SNMP configuration.

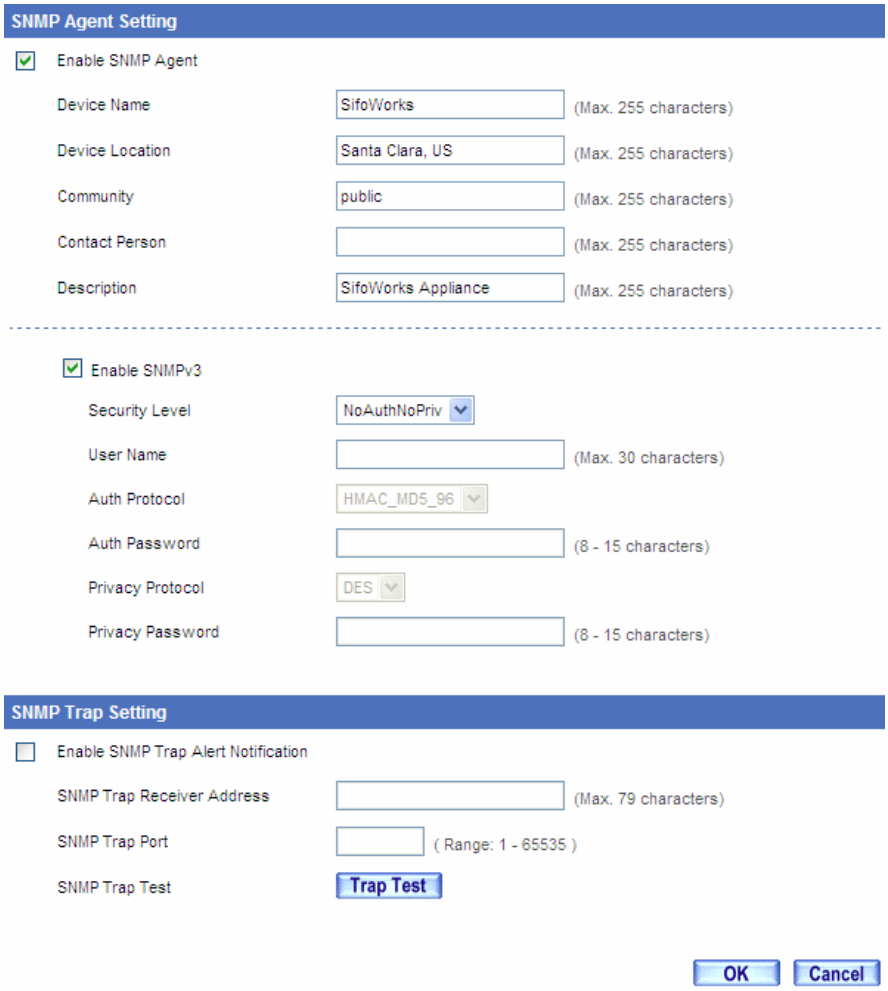


Figure 2.2

"SNMP Agent Setting"

Set up the basic settings of the SNMP function in this area.

Step 1: **Enable SNMP Agent**.

Step 2: Enter the **name** and **location** of this SifoWorks device.

Step 3: Configure the remaining parameters.

Step 4: To use SNMP version 3, select **enable SNMPv3**.

Step 5: Select the **security level** and enter the **user name**, **auth protocol** and **password** and **privacy protocol** and **password** if the required.

Note: The parameters **privacy protocol** and **privacy password** are not available on SifoWorks U100.

Step 6: Click **[OK]** to save the settings.

"SNMP Trap Setting"

Step 1: Select to **enable SNMP Trap alert notification**. The system will send alert events to the trap recipient specified here.

Step 2: Specify the **receiver address** and the **trap port**.

Step 3: Click **[OK]** to save the configuration.

You can also click **[Trap Test]** to test that the SNMP trap is working correctly.

Chapter

3

Network Settings

3.1 SifoWorks U-series Operating Modes

You can configure the SifoWorks U-series device to operate in one of 2 working modes, routing mode, and mix mode.

3.1.1 Routing Mode

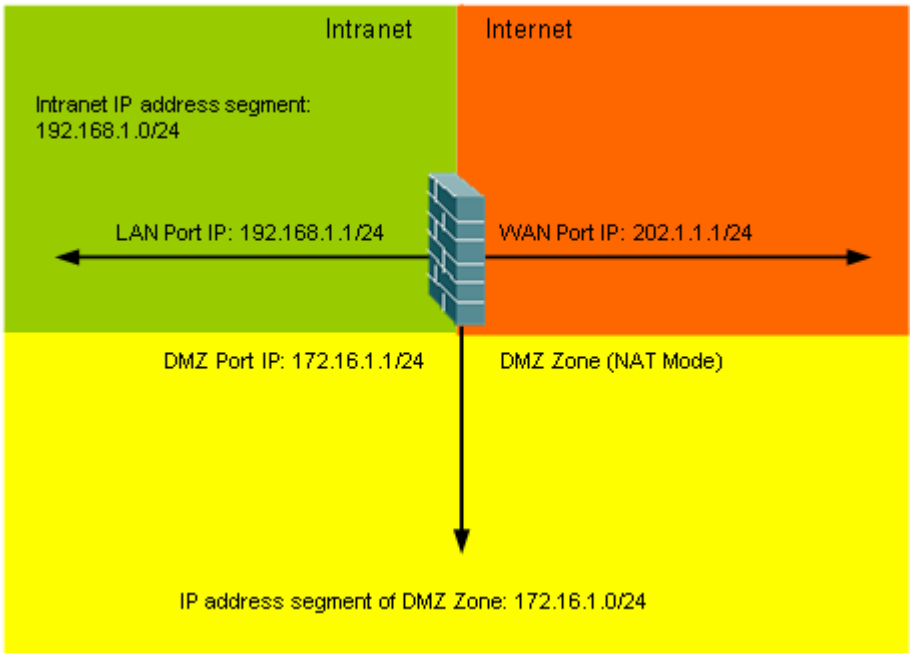


Figure 3.1

In routing mode, SifoWorks LAN, WAN and DMZ ports are connected to different network segments. Data is transmitted via NAT or route forwarding from the Intranet to the Internet and from DMZ to the Internet.

This mode is suitable for the following network environments:

1. Internal users are assigned private IP addresses. Therefore, the system needs to translate these addresses to a public IP address via NAT when users access the Internet.

2. A server providing services to the external network but is not assigned a public IP address or there is insufficient public IP address for use. Hence, the address needs to be translated, via NAT, to the SifoWorks WAN port address or an IP address in the same segment as the WAN port address.

3. An internal server providing services to the external network is assigned a public IP address but administrators want to hide this IP address.

3.1.2 Mix Mode

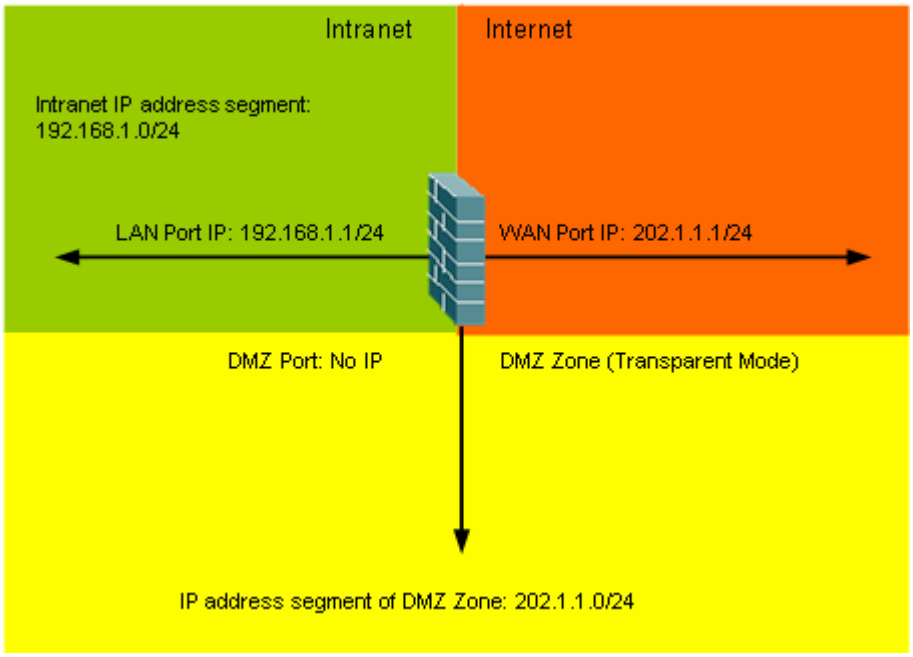


Figure 3.2

In mix mode, SifoWorks LAN and WAN ports are connected to different network segments while the DMZ port is connected to the same network segment as the WAN port.

Communications between the Intranet and the Internet is performed via NAT or route forwarding. All communications between the DMZ and WAN port is via the transparent bridge mode.

This mode is suitable for the following network environments:

1. User's internal address is a private IP address and needs to be translated to a public IP address via NAT when accessing the Internet.

2. The server must be able to provide services to be accessed externally. Since there are sufficient public IP addresses to be assigned to the server, the servers located within the DMZ zone must therefore be configured with a public IP address.

3.2 Configuring the Physical Interfaces

3.2.1 LAN Interface

Step 1: Select **"Interface > LAN"** to configure the LAN interface port.

Step 2: Enter the **IP address**, **netmask** and **MAC Address** of the connected LAN.

Step 3: Enabling **Ping/Traceroute** will allow users on the connected LAN to execute ping and traceroute commands on this interface's address. Note that SifoWorks U100 does not provide the "traceroute" function.

Step 4: Enable **HTTP** and/or **HTTPS** to allow administrators to login to the device's WebUI from the connected LAN via the HTTP and/or HTTPS protocol.

HTTPS is not supported by the SifoWorks U100 system.

Step 5: Click **[OK]** to save the configurations. Please restart the system for the new LAN IP address to take effect.

3.2.2 WAN Interface

Step 1: Select **"Interface > WAN"** to configure the WAN interface ports. The list shows the current configurations for the WAN ports. Note that the "WAN1" port cannot be disabled while the remaining WAN ports are disabled by default.

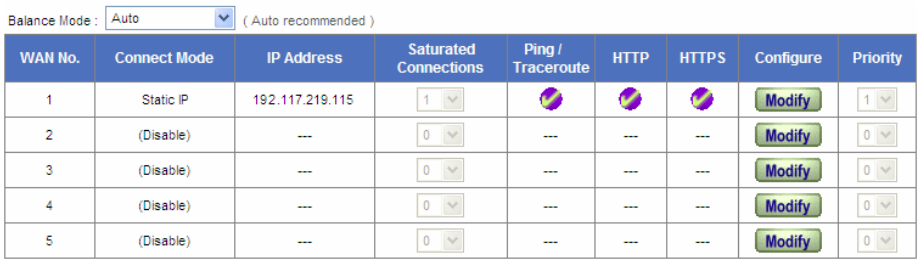

Balance Mode : Auto (Auto recommended)
WAN No. | Connect Mode | IP Address | Saturated Connections | Ping / Traceroute | HTTP | HTTPS | Configure | Priority
1 | Static IP | 192.117.219.115 | 1 | | | | Modify | 1
2 | (Disable) | --- | 0 | --- | --- | --- | Modify | 0
3 | (Disable) | --- | 0 | --- | --- | --- | Modify | 0
4 | (Disable) | --- | 0 | --- | --- | --- | Modify | 0
5 | (Disable) | --- | 0 | --- | --- | --- | Modify | 0

Figure 3.3

Step 2: From the top of the list, select the **balance mode** between the two WAN ports. The available modes include:

- Auto: SifoWorks will automatically adjust the downstream/upstream bandwidth between the two WAN ports.
- Round-Robin: SifoWorks distributes the WAN download bandwidth in order.
- By Traffic: Bandwidth is distributed based on the accumulative traffic on each port.
- By Session: Bandwidth is distributed based on the number of connections on each port.
- By Packet: Bandwidth is distributed based on the number of packets and connections on each port
- By Source IP: Bandwidth is distributed based on the source IP of the packets.
- By Destination IP: Bandwidth is distributed based on the destination IP of the packets.

Step 3: You can also select the maximum number of sessions on each WAN port from the **Saturated Connections** column of the list. When this number is reached, SifoWorks will direct subsequent connections to the next port. Note that this is not configurable if only one WAN port is enabled.

Step 4: Set the port's Internet access priority from the **Priority** column.

Click **[Modify]** to edit the configuration of the corresponding WAN port. Note that the settings for all WAN ports are similar except that WAN interfaces other than WAN1 have the additional option of being disabled.

Configure the WAN Interface

Step 5: Set up the **service** used to perform connection tests on the WAN interface.

Step 5.1: If "DNS" is selected, enter the **DNS Server IP address** and corresponding **Domain name**.

Step 5.2: If "ICMP" is selected, enter the **Alive Indicator Site IP** address.

Step 5.3: You can click the **[Assist]** link next to the **DNS Server IP Address**, **Domain name** or **Alive Indicator Site IP** to view a list of the available DNS Server IP addresses/DNS Server Domain Name/Alive Indicator Site IP addresses respectively.

Step 6: Specify the time interval between the sending of each alive packet.

Step 7: Select the Internet connection mode from the three methods available, including:

1. "PPPoE"

This refers to ADSL modem connections. The configuration interface is shown below:

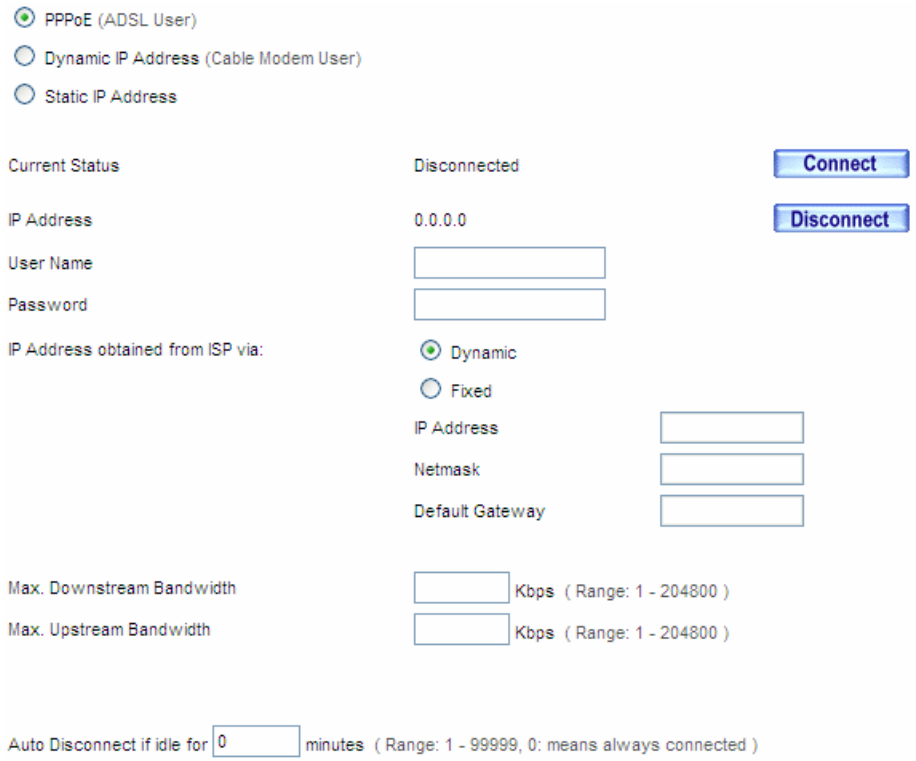


Figure 3.4

Step 7.1.1: **Current Status**: The current connection status. You can click the **[Connect]** or **[Disconnect]** button to connect or disconnect the connection respectively.

Step 7.1.2: **IP Address**: Displays the IP address of the connection.

Step 7.1.3: Enter the **user name** and **password** as registered with the Internet service provider (ISP).

Step 7.1.4: Specify whether a **fixed** or **dynamic** connection IP address is obtained from the ISP.

Step 7.1.5: If the IP address obtained by the ISP is **fixed**, enter the **IP address**, **netmask** and **default gateway** of the connection.

Step 7.1.6: Configure the **maximum downstream** and **upstream** bandwidth of the connection and set the **idle time**.

2. "Dynamic IP Address"

This is for cable modem connections. The configuration interface is shown below:

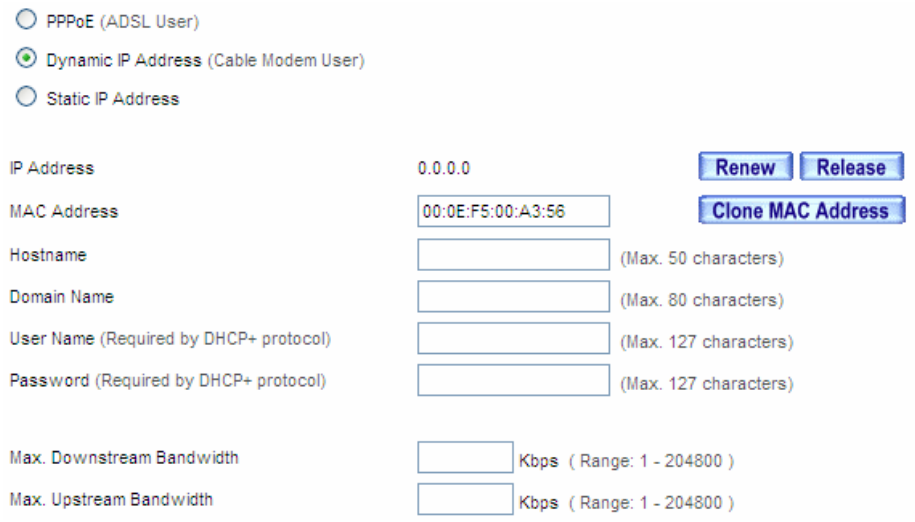


Figure 3.5

Step 7.2.1: **IP Address** displays the IP address currently assigned to this connection by the ISP.

Step 7.2.2: Click **[Renew]** to obtain an IP address from the ISP. Click **[Release]** to stop the use of this IP address and disconnect from the ISP.

Step 7.2.3: If required by the ISP, click **[Clone MAC Address]** to automatically configure the system's MAC address.

Step 7.2.4: Enter the **hostname**, **domain name**, **user name** and **password** as provided by the ISP.

Step 7.2.5: Specify the **maximum downstream** and **upstream bandwidth** of this connection.

3. "Static IP Address"

This is for users on static connections or ADSL static line users.

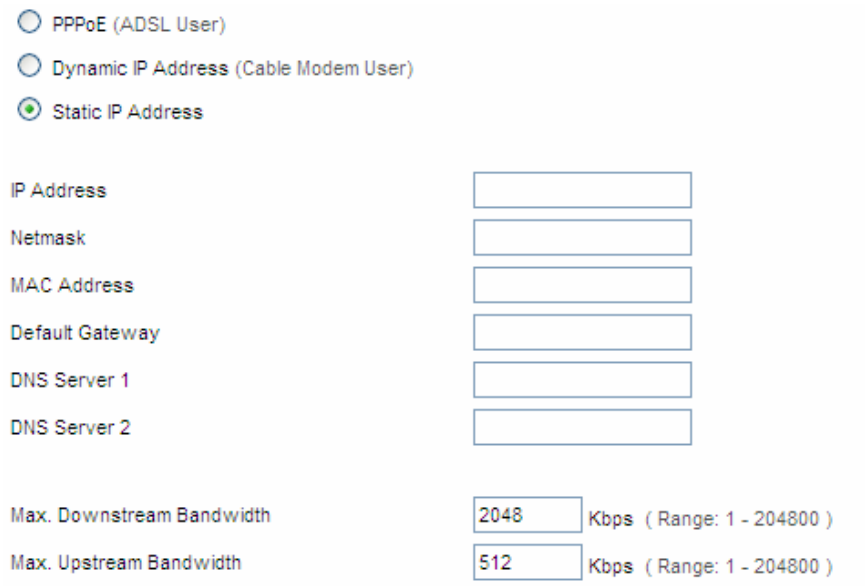


Figure 3.6

Step 7.3.1: Here, enter the static **IP address**, **netmask**, **MAC address**, the IP address of the **default gateway** and the **DNS servers**.

Note that IP addresses of the DNS servers can only be configured for the WAN1 interface.

Step 7.3.2: Specify the **maximum downstream** and **upstream bandwidth** for this connection.

Step 8: From the bottom of the configuration interface, enable **HTTP** and/or **HTTPS** to allow administrators to login to the device's WebUI from the connected WAN. HTTPS is not supported by the SifoWorks U100 system.

Step 9: Enabling **Ping/Traceroute** will allow users on the connected WAN to execute ping and traceroute commands on this interface's address. Note that SifoWorks U100 does not provide the "traceroute" function.

Step 10: Click **[OK]** to save the configurations.

Warning: *Allowing WAN users to access the system's WebUI may compromise the security of the system and network. We therefore recommend that you disable **HTTP**, **HTTPS** and **PING/Traceroute** on the WAN interfaces.*

If the administrator needs to access the WebUI from the WAN network, we recommend that you set up permitted IPs instead. Please refer to section "1.2 Permitted Login IPs" for configuration details.

3.2.3 DMZ Interface

Step 1: Select **"Interface > DMZ"** to configure the DMZ interface port.

Step 2: Select the working mode from the drop down menu and enter the corresponding **IP address**, **netmask** and **MAC address**. The modes include:

- "Disable": Disable the use of the DMZ port.
- "NAT": In NAT mode, DMZ exists as an independent virtual subnet. The virtual subnet must not be the same as the configuration for the LAN interface.
- "Transparent Routing": When a packet from DMZ is sent to SifoWorks, the packet will be forwarded to the appropriate interface according to the system's route table.
- "Transparent Bridging": When a packet from DMZ is sent to the system, the system decides which interface to forward the packet to according to its destination MAC address. In this mode, SifoWorks operates as a basic network switch.

Step 3: From the bottom of the configuration interface, enable **HTTP** and/or **HTTPS** to allow administrators to login to the device's WebUI from the connected DMZ.

HTTPS is not supported by the SifoWorks U100 system.

Step 4: Enabling **Ping/Traceroute** will allow users on the connected DMZ to execute ping and traceroute commands on this interface's address. Note that SifoWorks U100 does not provide the "traceroute" function.

Step 5: Click **[OK]** to save the settings.

3.3 Configuring Multiple Subnets

From the left menu, select **"System > Configure > Multiple Subnets"**. This function allows administrators to set up multiple subnets within the LAN or DMZ network.

The list displayed shows the various subnets configured in the system and their corresponding settings. You can edit or delete any subnet from the list by clicking the appropriate buttons.

Step 1: Click **[New Entry]** to add a new subnet.

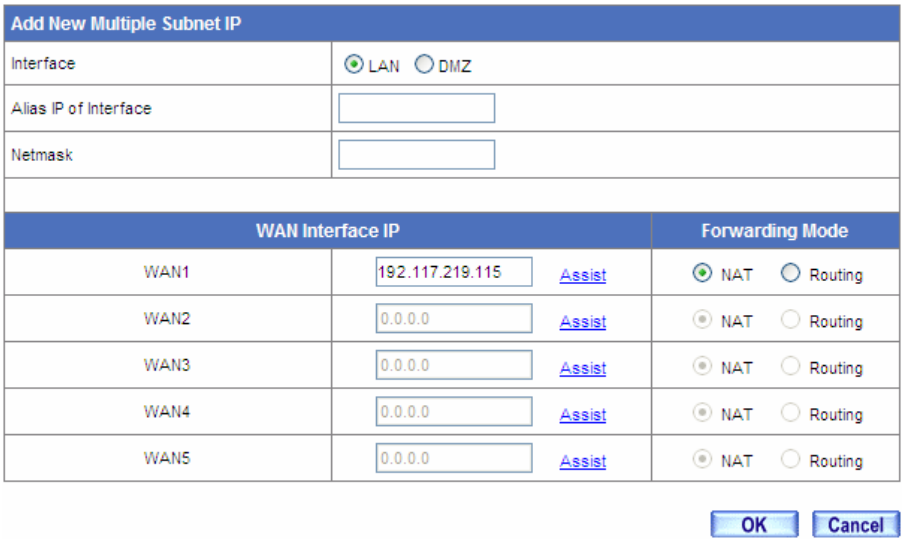


Figure 3.7

Step 2: Select the whether the subnet is in the "LAN" or "DMZ" **interface**.

Step 3: Enter the **Alias IP** address of this subnet and the corresponding **netmask**.

Step 4: Set up the **WAN Interface IP** addresses of WAN1 and/or other WAN ports that the subnet communicates with (if enabled). Click the **[Assist]** link to view a list of the WAN IP addresses.

Step 5: Select the **Forwarding Mode** for each WAN interface the subnet communicates with. **NAT** mode allows multiple subnet addresses to connect to the Internet through different WAN IP addresses. **Routing** mode is similar to NAT mode except that the WAN IP addresses need not be real addresses. Internal hosts access external network via its own IP address.

Step 6: Click **[OK]** to add the new subnet.

Application Example

Objective – To set up 2 subnets, each using a different mode to link to the Internet

In this example, we set up 2 subnets such that both are able to connect to the Internet through the SifoWorks U-series WAN interfaces. WAN1 (10.10.10.1) is connected to an ISP router with IP address 10.10.10.2 and connects to the Internet via **routing** mode. WAN2 (211.22.22.22) is connected to the ADSL/Cable router and connects to the Internet via **NAT** mode.

Step 1: **Set up Multiple Subnets**

Step 1.1: From the left menu, select "**System > Configure > Multiple Subnet**".

Step 1.2: From the bottom of the list displayed, click **[New Entry]** and set up as follows:

Alias IP of LAN Interface: 162.172.50.1

Netmask: 255.255.255.0

WAN1: Select **Routing** for **Forwarding Mode**

WAN2: Select **NAT** for **Forwarding Mode** and enter the IP address 211.22.22.22.

Step 1.3: Click **[OK]** to save the new subnet.

We now have 2 subnets in the LAN, the default LAN subnet with address 192.168.1.0/24 and the subnet we configured earlier 162.172.50.0/24.

Step 2: **Set up the policies**

Set up the relevant outgoing Policy rules in "**Policy > Outgoing**" such that:

1. All hosts in the default subnet with IP address 192.168.1.xxx can only access the Internet through the WAN2 interface via NAT mode. Hosts in this subnet cannot use their private IP to access the internet via routing mode.

2. All hosts in the second subnet with IP address 162.172.50.xxx can access the Internet via routing mode through the WAN1 interface. In this mode, the host's IP address (162.172.50.xxx) is made public to the Internet servers.

3. All hosts in the second subnet can also access the Internet via NAT through the WAN2 interface. Here, the internet servers will only see the WAN2 interface's IP address.

Please refer to section "4.1 Outgoing Policies" for details on configuring outgoing policies.

Results of Configuration

The figure below shows the topology of the network after the configurations above.

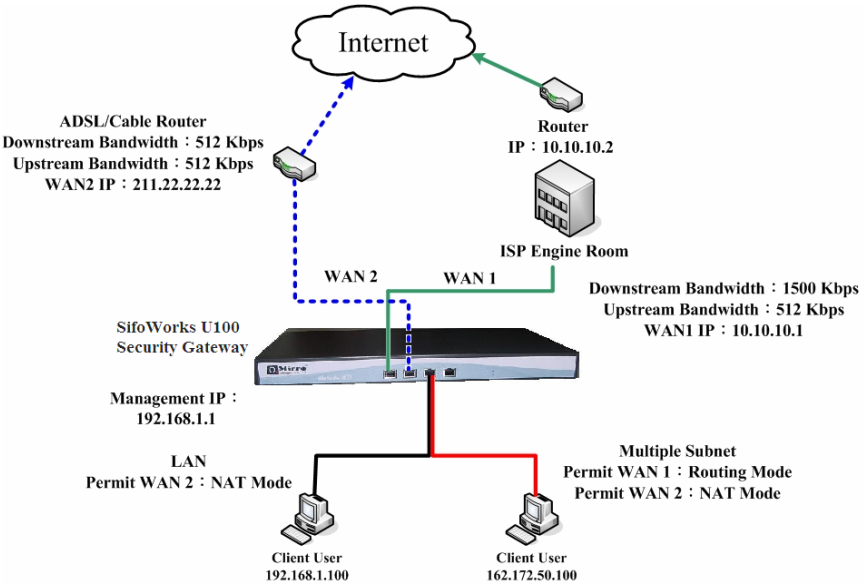


Figure 3.8

3.4 Route Table

Select **"System > Configure > Route Table"** to view the list of static routes configured in the system. From the list, you can edit or delete the routes by clicking the appropriate buttons.

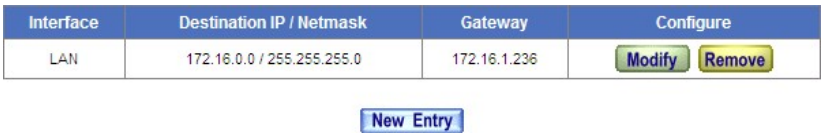


Figure 3.9

Step 1: Click **[New Entry]** to view the "add new static route" configuration interface.

Step 2: Enter the relevant parameters including **Destination IP**, **Netmask**, **Gateway** and **Interface** of the static route.

Step 3: Click **[OK]** to add the new static route.

3.5 Setting DHCP

You can set up SifoWorks UTM as a DHCP server or DHCP relay server to provide DHCP services. Select **"System > Configure > DHCP"** from the left menu to view the configuration interface.

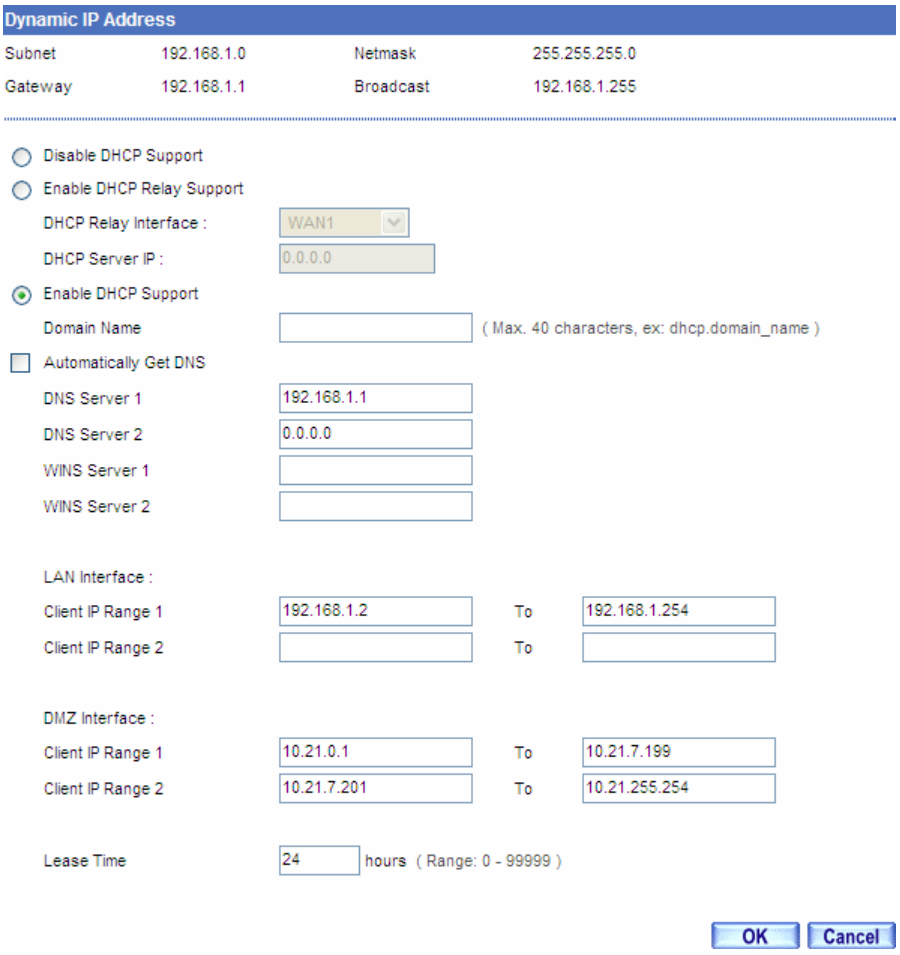

Dynamic IP Address
Subnet 192.168.1.0 Netmask 255.255.255.0
Gateway 192.168.1.1 Broadcast 192.168.1.255
Disable DHCP Support
Enable DHCP Relay Support
DHCP Relay Interface : WAN1
DHCP Server IP : 0.0.0.0
Enable DHCP Support
Domain Name (Max. 40 characters, ex: dhcp.domain_name)
Automatically Get DNS
DNS Server 1 192.168.1.1
DNS Server 2 0.0.0.0
WINS Server 1
WINS Server 2
LAN Interface :
Client IP Range 1 192.168.1.2 To 192.168.1.254
Client IP Range 2 To
DMZ Interface :
Client IP Range 1 10.21.0.1 To 10.21.7.199
Client IP Range 2 10.21.7.201 To 10.21.255.254
Lease Time 24 hours (Range: 0 - 99999)
OK
Cancel

Figure 3.10

Step 1: Select to **Enable DHCP Support**.

> **Note:** *Select **Disable DHCP Support** to disable SifoWorks' DHCP service.*
>
> *To configure SifoWorks as a DHCP relay server, select **Enable DHCP Relay Support**. Select the **interface** used for communications between SifoWorks and the server and specify the DHCP server's **IP** address.*

Step 2: Enter the **Domain Name** where the server is situated.

Step 3: Enter the IP addresses of the primary and secondary **DNS server** and **WINS Server**. You can also select to **Automatically Get DNS** server's IP address. The system will use the IP address of the LAN interface as the address of the primary DNS server.

Step 4: Specify the **Client IP Range** used for DHCP lease for the **LAN interface** and the **DMZ interface** separately. You can define up to 2 IP ranges for each of the 2 interfaces.

Note that

1. IP addresses within a range must be in the same subnet.
2. Addresses in **Client IP range 2** must be within the same subnet as **Range 1**.
3. **Client IP range 2** cannot contain the same IP addresses as **Client IP range 1**.

Step 5: Enter the **lease time** for each IP address lease. The default lease time is 24 hours. Click **[OK]** to save the configurations.

3.6 Dynamic DNS

The dynamic DNS service translates specific domain names to the corresponding host computer which IP address is not static. Users can access the host using just the domain name without having to know the dynamic IP address provided by the computer's ISP.

From the left menu, select **"System > Configure > Dynamic DNS"**. You can set up the use of dynamic DNS (DDNS) servers by the system through this function.

Step 1: Click **[New Entry]** to view the configuration interface as shown in the figure below:

Figure 3.11

Step 2: Select the **Service Provider** you are registered with. You can click the **[sign up]** link to enter the service provider's website to sign up for the DDNS service.

Step 3: Enter the **WAN IP** address or select to **automatically** fill in the IP according to the address of WAN interface selected.

Step 4: Enter the registered **user name**, **password**, and the **domain name** of the host.

Step 5: Click **[OK]** to add the new dynamic DNS.

The icon in the leftmost column of the DDNS list displays the status of the corresponding DDNS. The icons include:

Update Successful

Incorrect username or password

Connecting to server

Unknown error

3.7 Host Table

Select **"System > Configure > Host Table"** to view the list of host name to virtual IP address mappings. Click **[New Entry]** to set up mappings between **virtual IP** addresses and **host names**. The virtual IP address must be the IP address of SifoWorks' LAN or DMZ interface.

Internal users will be able to access services on this host using the virtual IP address mapped to it.

Note: *The IP address of the user's primary DNS server must be the same as SifoWorks' LAN port or DMZ Port IP address.*

Chapter

4

Firewall Policy Management

The firewall policy management system is one of the core functions of the SifoWorks U-series security gateway device. All data packets in the network (other than VPN packets) are matched with the policies defined in the system. A data packet is permitted as long as it matches one policy with the permit action.

You can set up different policies based on the inbound and outbound networks of the traffic. As policy objects are frequently used to configure the policies, we recommend that you first add the objects necessary. Please refer to chapter "5 Policy Object Management" to chapter "8 IPsec VPN" for object configuration details.

4.1 Outgoing Policies

Outgoing policies are used when the source IP is in the LAN network while the destination is in the WAN network.

Select **"Policy > Outgoing"** to view the list of outgoing policies defined in the system. You can modify or delete policies from the list by clicking the appropriate buttons in the **configure** column. Click the **[Pause]** button to temporarily pause the use of the corresponding policy.

Action Column

The **Action** column in the list displays the action performed on the data packets matching the policy.

Permit packets on all WAN interfaces

Only permit packets on the WAN1 interface

Only permit outgoing packets on the other interface. The number on the icon corresponds to the number of the interface selected. For example, a "2" icon indicates that packets on the WAN2 interface are permitted.

Note that if the WAN interface is enabled, the icon number displayed is yellow. If the interface is disabled, it will be displayed in red. Please refer to section "3.2.2 WAN Interface" for details on configuring WAN interfaces.

Permit only outgoing packets through the selected VPN trunk

Deny packets that matches the policy

Policy is disabled

Option Column

Administrators can enable various options such as enable traffic log, content blocking etc. when defining policies. The **Options** column in the list shows the options that are enabled for each policy.

Traffic Log

Statistics

Authentication User

Schedule

Content Blocking

QoS

IDP

Application Blocking

Anti-Virus

4.1.1 Adding Outgoing Policies

Step 1: Click **[New Entry]** to add a new outgoing policy.

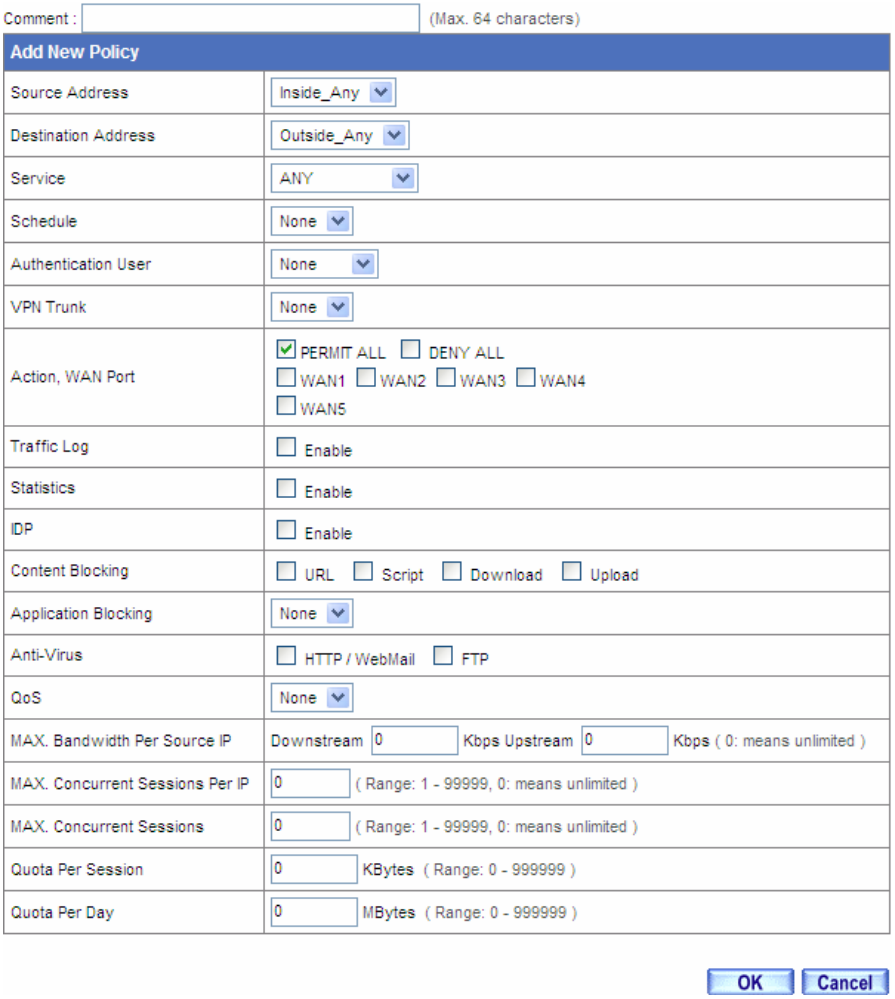


Figure 4.1

Step 2: Select the **source address**, **destination address** and **service** to match to the data packets.

Step 3: Select the **Action, WAN Port** to perform on packets matching this policy.

Step 4: Select whether to enable the various policy options including

1. **Schedule**: Select the schedule object to specify when the policy will be in effect.

2. **Authentication User**: Select the user object required to be authenticated when attempting to send outgoing packets that matches this policy.

3. **VPN Trunk**: Select the VPN Trunk object that will be monitored using this policy.

4. **Traffic Log**: Select to log the packets that match this policy into the traffic log.

5. **Statistics**: Select to collect the statistics generated by this policy. Administrators can view the statistics in **"Monitor > Statistics > Policy"**. Please refer to section "16.3.2 Policy Statistics" for more details.

6. **IDP**: Select to enable IDP for packets matching this policy. Please refer to chapter "13 Intrusion Detection and Prevention" for details on configuring IDP.

7. **Content Blocking**: Select which content blocking objects to be blocked by this policy.

8. **Application Blocking**: Select the application blocking object to be activated in this policy.

9. **Anti-Virus**: Select whether to enable anti-virus checks on HTTP/Webmail or FTP packets matching this policy. This option is not available for SifoWorks U100.

10. **QoS**: Enable quality of service by selecting the appropriate QoS object.

Step 5: Using policies, you can also manage the **maximum concurrent sessions per IP** and **maximum upstream** and **downstream bandwidth per source IP** for the addresses matching this policy.

Step 6: Also specify the total **maximum concurrent sessions** allowed.

Step 7: Enter the **quota per session** and **quota per day** to manage the bandwidth used by all packets matching this policy.

Note: ***Quota per session*** *and* ***Quota per day*** *configuration parameters are not available on SifoWorks U100*

Step 8: Enter a brief **comment** for this policy if desired.

Step 9: Click **[OK]** to add the new outgoing policy.

4.1.2 Adjusting Policies' Positions

The SifoWorks system matches each packet with the policies in the list in a top down fashion. The system will check from the first to the last policy in the list until a match is found. Therefore, the position of the policies is of utmost importance to the operation of the firewall.

In the **move** column, select the position of the policy from the drop down list to adjust the policies' priority.

4.2 Incoming Policies

Incoming policies are used when the source IP is in the WAN network while the destination is in the LAN network.

Select **"Policy > Incoming"** to view the list of incoming policies defined in the system. You can modify or delete policies from the list by clicking the appropriate buttons in the **configure** column. Click the **[Pause]** button to temporarily pause the use of the corresponding policy.

Action Column

The **Action** column in the list displays the action performed on the data packets matching the policy.

Permit packets on all WAN interfaces

Permit only incoming packets through the selected VPN trunk

Deny packets that matches the policy

Policy is disabled

Option Column

Administrators can enable various options such as enable traffic log, content blocking etc. when defining policies. The **Options** column in the list shows the options that are enabled for each policy.

Traffic Log

Statistics

Schedule

Network Address Translation

QoS

IDP

4.2.1 Adding Incoming Policies

Step 1: Click **[New Entry]** to add a new incoming policy.

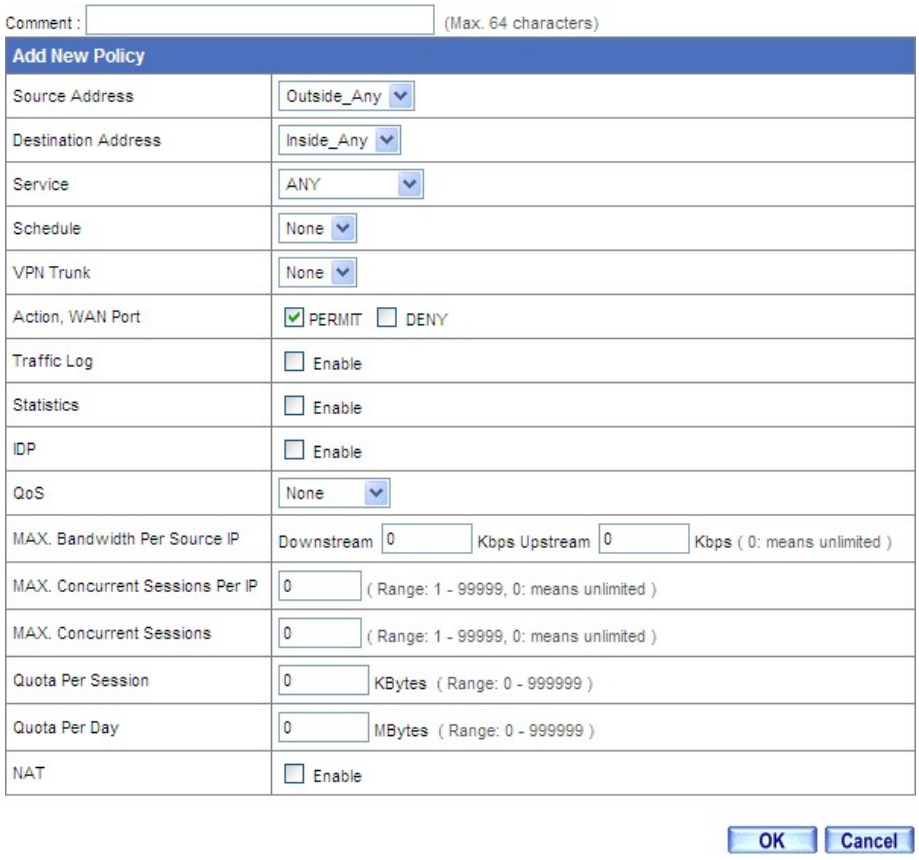


Figure 4.2

Step 2: Select the **Source Address**, **Destination Address** and **Service** to match to the data packets.

Step 3: Select the **Action** to perform on packets matching this policy.

Step 4: Select whether to enable the various policy options including

1. **Schedule**: Select the schedule object to specify when the policy will be in effect.

2. **VPN Trunk**: Select the VPN Trunk object that will be monitored using this policy.

3. **Traffic Log**: Select to log the packets that match this policy into the traffic log.

4. **Statistics**: Select to collect the statistics generated by this policy. Administrators can view the statistics in **"Monitor > Statistics > Policy"**. Please refer to section "16.3.2 Policy Statistics" for more details.

5. **IDP**: Select to enable IDP for packets matching this policy. Please refer to chapter "13 Intrusion Detection and Prevention" for details on configuring IDP.

6. **QoS**: Enable quality of service by selecting the appropriate QoS object.

7. **NAT**: Select to enable network address translation

Step 5: Using policies, you can also manage the **Max. Concurrent Sessions Per IP** and **Max. Upstream** and **Downstream Bandwidth Per Source IP** for the addresses matching this policy.

Step 6: Also specify the total **Max. Concurrent Sessions** allowed.

Step 7: Enter the **Quota Per Session** and **Quota Per Day** to manage the bandwidth used through the policy.

Note: ***Quota per session*** *and* ***Quota per day*** *configuration parameters are not available on SifoWorks U100*

Step 8: Enter a brief **comment** for this policy if desired.

Step 9: Click **[OK]** to add the new incoming policy.

4.2.2 Adjusting Policies' Positions

The SifoWorks system matches each packet with the policies in the list in a top down fashion. The system will check from the first to the last policy in the list until a match is found. Therefore, the position of the policies is of utmost importance to the operation of the firewall.

In the **move** column, select the position of the policy from the drop down list to adjust the policies' priority.

4.3 WAN to DMZ Policies

WAN to DMZ policies are used when the source IP is in the WAN network while the destination is in DMZ. This is used when external users access configured virtual service, mapped IP services etc.

Select **"Policy > WAN to DMZ"** to view the list of WAN to DMZ policies defined in the system. You can modify or delete policies from the list by clicking the appropriate buttons in the **configure** column. Click the **[Pause]** button to temporarily pause the use of the corresponding policy.

The configuration procedure for WAN to DMZ policies is identical to the configuration for incoming policies. Please refer to section "4.2 Incoming Policies" for configuration details.

4.4 LAN to DMZ Policies

LAN to DMZ policies are used when the source IP is in LAN while the destination is in DMZ.

Select **"Policy > LAN to DMZ"** to view the list of LAN to DMZ policies defined in the system. You can modify or delete policies from the list by clicking the appropriate buttons in the **configure** column. Click the **[Pause]** button to temporarily pause the use of the corresponding policy.

Action Column

The **Action** column in the list displays the action performed on the data packets matching the policy.

Permit packets on all network interfaces

Deny packets that matches the policy

Option Column

Administrators can enable various options such as enable traffic log, content blocking etc. when defining policies. The **Options** column in the list shows the options that are enabled for each policy.

- Traffic Log
- Statistics
- Schedule
- Network Address Translation
- IDP
- Anti-Virus

4.4.1 Adding LAN to DMZ Policies

Step 1: Click **[New Entry]** to add a new LAN to DMZ policy.

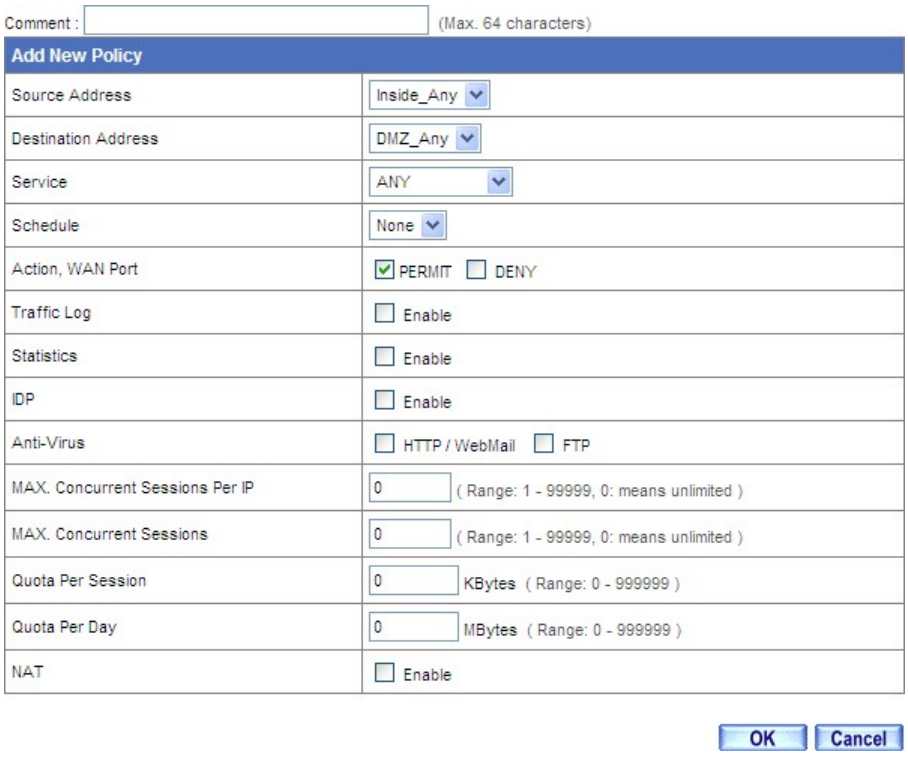


Figure 4.3

Step 2: Select the **source address**, **destination address** and **service** to match to the data packets.

Step 3: Select the **Action** to perform on packets matching this policy.

Step 4: Select whether to enable the various policy options including

1. **Schedule**: Select the schedule object to specify when the policy will be in effect.

2. **Traffic Log**: Select to log the packets that match this policy into the traffic log.

3. **Statistics**: Select to collect the statistics generated by this policy. Administrators can view the statistics in **"Monitor > Statistics > Policy"**. Please refer to section "16.3.2 Policy Statistics" for more details.

4. **IDP**: Select to enable IDP for packets matching this policy. Please refer to chapter "13 Intrusion Detection and Prevention" for details on configuring IDP.

5. **Anti-Virus**: Select whether to enable anti-virus checks on HTTP/Webmail or FTP packets matching this policy. This option is not available for SifoWorks U100.

6. **NAT**: Select to enable network address translation

Step 5: Using policies, you can also manage the **maximum concurrent sessions per IP** for the addresses matching this policy.

Step 6: Also specify the total **maximum concurrent sessions** allowed.

Step 7: Enter the **quota per session** and **quota per day** to manage the bandwidth used through the policy.

***Note:** **Quota per session** and **Quota per day** configuration parameters are not available on SifoWorks U100*

Step 8: Enter a brief **comment** for this policy if desired.

Step 9: Click **[OK]** to add the new incoming policy.

4.4.2 Adjusting Policies' Positions

The SifoWorks system matches each packet with the policies in the list in a top down fashion. The system will check from the first to the last policy in the list until a match is found. Therefore, the position of the policies is of utmost importance to the operation of the firewall.

In the **move** column, select the position of the policy from the drop down list to adjust the policies' priority.

4.5 DMZ to WAN Policies

DMZ to WAN policies are used when the source IP is in the DMZ network while the destination is in WAN.

Select **"Policy > DMZ to WAN"** to view the list of DMZ to WAN policies defined in the system. You can modify or delete policies from the list by clicking the appropriate buttons in the **Configure** column. Click the **[Pause]** button to temporarily pause the use of the corresponding policy.

The configuration procedure for DMZ to WAN policies is identical to the configuration for outgoing policies. Please refer to section "4.1 Outgoing Policies" for configuration details.

4.6 DMZ to LAN Policies

DMZ to LAN policies are used when the source IP is in the DMZ network while the destination is in LAN.

Select **"Policy > DMZ to LAN"** to view the list of DMZ to LAN policies defined in the system. You can modify or delete policies from the list by clicking the appropriate buttons in the **Configure** column. Click the **[Pause]** button to temporarily pause the use of the corresponding policy.

The configuration procedure for DMZ to LAN policies is identical to the configuration for LAN to DMZ policies. Please refer to section "4.4 LAN to DMZ Policies" for configuration details.

4.7 Application Examples

Here we list a number of examples for the application of firewall policies.

4.7.1 Monitoring the Activities of Internal Users

Here we set up a policy to monitor the network activities of internal users. Select **"Policy > Outgoing"**.

Step 1: Click **[New Entry]** to add a new outgoing policy. Configure the policy as follows:

Step 2: **Source Address:** Inside_Any

Step 3: **Destination Address:** Outside_Any

Step 4: **Action:** Permit All

Step 5: Select to enable **Traffic Log** and **Statistics**.

Step 6: Click **[OK]** to add the new policy.

Results of Configuration

The system will now record all outgoing activities from LAN users. Administrators can view this log by selecting **"Monitor > Log > Traffic"** from the menu.

Select **"Monitor > Statistics > Policy"** to view the statistics generated by the policy.

Chapter

5

Policy Object Management

In the SifoWorks U-series system, objects refer to the various components that make up the system's rules. These include addresses, services as well as address groups and service groups, but exclude the type of actions (such as permission, prohibition, forwarding, etc.) specified by rules. An object definition consists of a name, which is a character string arbitrarily defined by the administrator when it is created; and its entity, which might be the IP Address, the group of IP Address, service or service group associated with the defined object.

Defining an object associates a name that is easier to remember to an entity or a group of entities. This way, not only are administrators relieved from remembering all the components, the process of making rules is also simplified and more intuitive since security policies can now be managed in an object oriented perspective.

After objects are defined, you can use them directly in subsequent rule-making process when defining policies and VPN.

The use of objects allows different pieces of information to be linked together by a specific object relationship. The linked information can then be easily managed by referring to a single object. This concept is useful in a network environment where there are a large number of IP addresses, different logic working groups, and different network services. For example, you can define the IP Address groups of a logic team as a single object even if the groups are located in different network segments. This way, you can directly refer to an address object when defining a rule, instead of entering multiple IP addresses. Also, when the members of the logic team change, you can modify the object definition rather than modify the SifoWorks system's policy rules.

This chapter introduces the various objects available in the SifoWorks system.

5.1 Address Objects

The use of address objects allows administrators to associate a name to IP addresses. These can be the address of a host in the network or the address of a sub network. Depending on the network it belongs to, you can define a single LAN IP address, WAN IP address or a DMZ IP address object.

To further simplify the policy making process, the system also allows the definition of address groups for each of the 3 networks. Address groups allow you to group multiple single IP address objects into 1 group object. Therefore, you must first define the necessary single address objects before defining address groups.

5.1.1 Single Address Objects

LAN Address Objects

From the left menu, select **"Policy Object > Address > LAN"** to view the list of address objects for the LAN network. You can modify or delete the objects by clicking the appropriate button in the **Configure** column on the list. Note that the default address object *Inside_Any* cannot be edited or deleted.

Step 1: Click **[New Entry]** to add a new LAN address object.

Step 2: In the "Add New Address" interface, enter the **Name** of the object, **IP Address** and corresponding **Netmask**.

Step 3: You can also enter a specific **MAC Address** to be mapped to the IP address.

Step 4: You can also select whether to get a static IP address from the DHCP server.

Tip: *Click **[Clone MAC Address]** for the system to automatically obtain the current user PC's MAC address.*

Step 5: Click **[OK]** to add the new address object.

WAN Address Objects

From the left menu, select **"Policy Object > Address > WAN"** to view the list of address objects for the WAN network. You can modify or delete the objects by clicking the appropriate button in the **Configure** column on the list. Note that the default address object *Outside_Any* cannot be edited or deleted.

Step 1: Click **[New Entry]** to add a new WAN address object.

Step 2: In the "Add New Address" interface, enter the **Name** of the object, **IP Address** and corresponding **Netmask**.

Step 3: Click **[OK]** to add the new address object.

DMZ Address Objects

From the left menu, select **"Policy Object > Address > DMZ"** to view the list of address objects for the LAN network. You can modify or delete the objects by clicking the appropriate button in the **Configure** column on the list. Note that the default address object *DMZ_Any* cannot be edited or deleted.

Step 1: Click **[New Entry]** to add a new DMZ address object.

Step 2: In the "Add New Address" interface, enter the **Name** of the object, **IP Address** and corresponding **Netmask**.

Step 3: You can also enter a specific **MAC Address**.

Step 4: You can also select whether to get a static IP address from the DHCP server.

Step 5: Click **[OK]** to add the new address object.

Tip: *From the LAN and DMZ address objects list, clicking the **[Assist add]** link from the top of the list will display all LAN/DMZ addresses connected to SifoWorks. You can select the desired LAN/DMZ address from this list to automatically add it as an address object in the system.*

Note that this function is not available in SifoWorks U100.

5.1.2 Address Group Objects

From the left menu, select **"Policy Object > Address > LAN Group"** to view the list of address group objects for the LAN network. You can edit or delete any object from the list by clicking on the appropriate buttons in the **Configure** column.

Step 1: Click **[New Entry]** to add a new address group object.

Step 2: Enter the object's **name**.

Step 3: Select the addresses to add into the group from the left **<--- Available address --->** list and click the **[Add >>]** button to add it into the **<--- Selected address --->** list on the right. Available addresses include all single LAN address objects in the system. Address objects in the selected address list are members of this address group.

Step 4: Select the addresses from the list on the right and click **[<<Remove]** to remove the selected addresses from the group.

Step 5: Click **[OK]** to add the new address group.

This configuration interface is similar for all three types of groups (**LAN Group**, **WAN Group**, **and DMZ Group**).

Application Example 1

Objective – To limit a user, assigned with a static IP address by the DHCP server, to access only FTP resources

Step 1: **Add a new LAN address object (user)**

Step 1.1 From the left menu, select "**Policy Object > Address > LAN**".

Step 1.2 Click **[New Entry]** to add a new LAN address object. Configure the parameters as follows:

Name: Rayearth

IP Address: 192.168.3.2

Netmask: 255.255.255.255

Mac Address: 00:B0:18:25:F5:89

Step 1.3 Select **Get Static IP address from DHCP Server**.

Step 1.4 Click **[OK]** to save the address object.

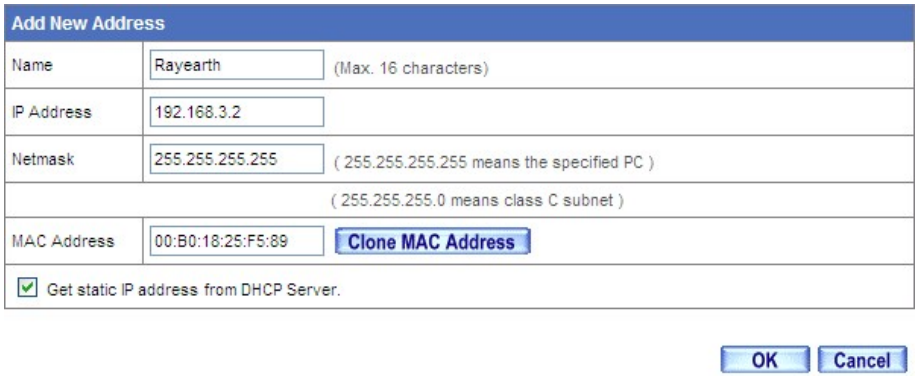


Figure 5.1

Step 2: **Add an outgoing policy**

Step 2.1 From the left menu, select "**Policy > Outgoing**".

Step 2.2 Click **[New Entry]** to add a new outgoing policy. Configure the parameters as follows:

Source Address: Rayearth

Destination Address: Outside_Any

Service: FTP

Action, WAN Port: Permit All

Step 2.3 Click **[OK]** to save the new outgoing policy.

Results of Configuration

Internal user "Rayearth" can now access external FTP resources through SifoWorks U-series policy.

Application Example 2

Objective – To allow a group of internal users to connect to a specific external static IP address (202.1.237.21/32)

Step 1: **Add several LAN address objects (users)**

Step 1.1 From the left menu, select "**Policy Object > Address > LAN**".

Step 1.2 Click **[New Entry]** to add a new LAN address object and configure the parameters accordingly.

Step 1.3 Click **[OK]** to save the address object.

Step 1.4 Repeat steps 1.1 to 1.3 to add other users.

Total entry : 4

Name	IP / Netmask	MAC Address	Configure
Inside_Any	0.0.0.0/0.0.0.0		In Use
Rayearth	192.168.3.2/255.255.255.255		Modify Remove
User2	192.168.1.24/255.255.255.255		Modify Remove
User3	192.168.1.2/255.255.255.255		Modify Remove

New Entry

Figure 5.2

Step 2: **Add a LAN address Group (user group)**

Step 2.1 From the left menu, select "**Policy Object > Address > LAN Group**".

Step 2.2 Click **[New Entry]** to add a new group with **name** "Lan_Users".

Step 2.3 From the **<--- Available address --->** list on the left, select the users added in step 1 and click **[Add>>]** to add the users as members of this group.

Step 2.4 Click **[OK]** to save the new LAN group.

Step 3: **Add a WAN address object (remote site)**

Step 3.1 From the left menu, select "**Policy Object > Address > WAN**".

Step 3.2 Click **[New Entry]** to add a new LAN address object and configure the parameters as follows:

Name: Yahoo

IP Address: 202.1.237.21

Netmask: 255.255.255.255

Step 3.3 Click **[OK]** to save the address object.

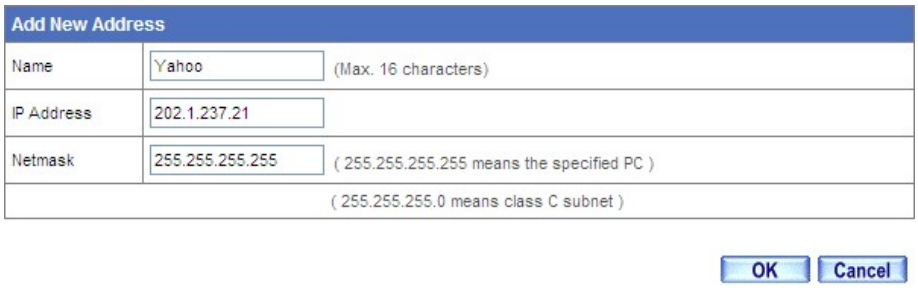


Figure 5.3

Step 4: **Add an outgoing policy**

Step 4.1 From the left menu, select "**Policy > Outgoing**".

Step 4.2 Click **[New Entry]** to add a new outgoing policy and configure the parameters as follows:

Source Address: Lan_Users

Destination Address: Yahoo

Service: ANY

Action, WAN Port: Permit All

Step 4.3 Click **[OK]** to save the new policy.

Results of Configuration

Internal users who are members of the group "Lan_Users" can now access the remote IP address at 202.1.237.21.

5.2 Service Objects

Service embedded objects are defined by TCP, UDP services provided in the network.

5.2.1 System Pre-defined Service Objects

SifoWorks U-series' system predefines a number of commonly used TCP and UDP services such as DNS, HTTP, and LDAP etc. These services cannot be modified or deleted.

Select **"Policy Object > Service > Pre-defined"** to view the details of the pre-defined services which includes the protocol type and port number of the service.

5.2.2 Custom Service Objects

In addition to pre-defined services, administrators can also define customized services to suit their needs. Select **"Policy Object > Service > Custom"** to view the list of user-defined service objects.

Step 1: Click **[New Entry]** to add a new service object. Note that for custom services, both the client and server port numbers ranges from 0 to 65535.

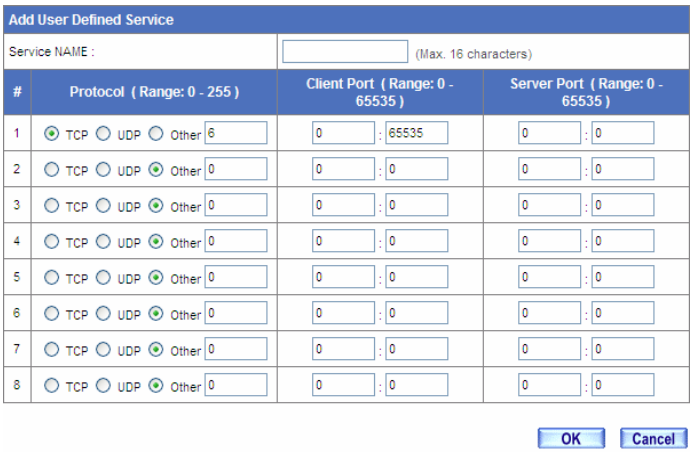

Add User Defined Service
Service NAME :
(Max. 16 characters)
Protocol (Range: 0 - 255) Client Port (Range: 0 - 65535) Server Port (Range: 0 - 65535)
1 TCP UDP Other 6 0 : 65535 0 : 0
2 TCP UDP Other 0 0 : 0 0 : 0
3 TCP UDP Other 0 0 : 0 0 : 0
4 TCP UDP Other 0 0 : 0 0 : 0
5 TCP UDP Other 0 0 : 0 0 : 0
6 TCP UDP Other 0 0 : 0 0 : 0
7 TCP UDP Other 0 0 : 0 0 : 0
8 TCP UDP Other 0 0 : 0 0 : 0
OK
Cancel

Figure 5.4

Step 2: Enter the **Service NAME**.

Step 3: Select whether the service uses the "TCP" protocol, "UDP" protocol or select "Other" and specify the protocol number.

Step 4: Enter the **Client** and **Server Port** number range for the selected protocol. Each service object can use up to 8 different **Protocols**, each configured with a different client and server port number ranges.

Step 5: Click **[OK]** to add the new service object.

5.2.3 Service Group Objects

From the left menu, select **"Policy Object > Service > Group"** to view the list of service group objects. You can edit or delete any object from the list by clicking on the appropriate buttons in the **Configure** column.

Step 1: Click **[New Entry]** to add a new service group object.

Step 2: Enter the object's **Name**.

Step 3: Select the services to add into the group from the left **<--- Available service --->** list and click the **[Add >>]** button to add

it into the **<--- Selected service --->** list on the right. The available service list displays all pre-defined and custom services currently in the system. All services that are members of this group will be displayed in the selected service list.

Step 4: Select the services from the list on the right and click **[<<Remove]** to remove the selected services from the group.

Step 5: Click **[OK]** to add the new service group.

Application Example

Objective – To allow LAN users access to a group of services (HTTP, POP3, SMTP)

Step 1: **Add a new service group**

Step 1.1 From the left menu, select "**Policy Object > Service > Group**".

Step 1.2 Click **[New Entry]** to add a new service with the **name** "Web_Mail_Svc"

Step 1.3 Select the services "HTTP", "POP3" and "SMTP" from the **<--- Available Service--->** list and click **[Add>>]** to add them as members of this group.

Step 1.4 Click **[OK]** to save the service group.

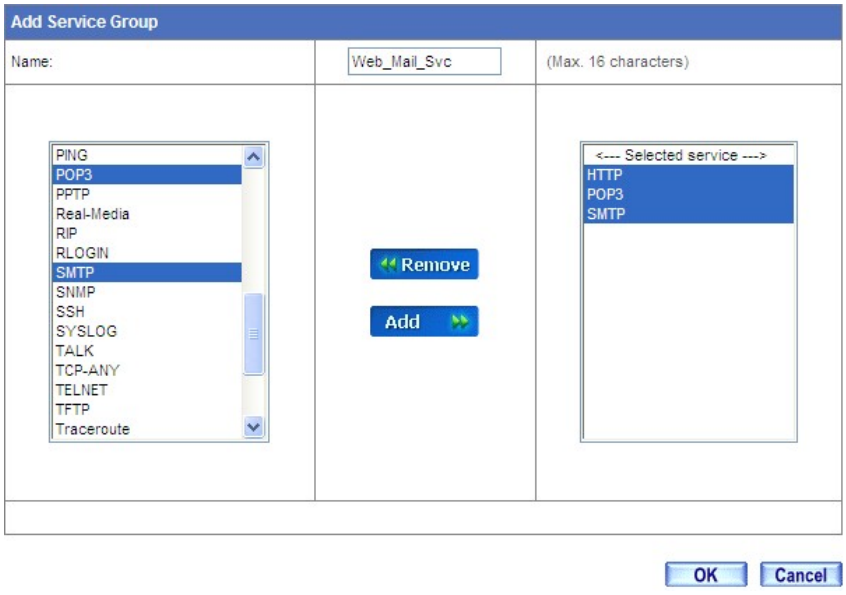


Figure 5.5

Step 2: **Add the LAN address objects**

Select **"Policy Object > Address > LAN"** and add the LAN users accordingly.

Step 3: **Add a new LAN address group**

Select **"Policy Object > Address > LAN Group"** and add a new LAN address group "Lan_Webmail_Users" with the LAN users configured in step 2 selected as members of this group.

Step 4: **Add a new outgoing policy**

Step 4.1 From the left menu, select "**Policy > Outgoing**".

Step 4.2 Click **[New Entry]** to add a new outgoing policy with the following parameters:

Name: Web_Mail_Access

Source Address: Lan_Webmail_Users

Destination Address: Outside_Any

Service: Web_Mail_Svc

Action, WAN Port: Permit All

Step 4.3 Click **[OK]** to save the new policy.

Results of Configuration

Internal users who are members of the group "Lan_Webmail_Users" can now access all external services in the group "Web_Mail_Svc".

5.3 Schedule Objects

You can define schedule objects to set up schedules when specific policies are in effect. From the menu, select **"Policy Object > Schedule > Setting"** to view a list of schedules.

Step 1: Click **[New Entry]** to add a new schedule.

Step 2: Enter the **Schedule Name** and specify the time period for each day of the week the schedule is set to take effect.

Step 3: Click **[OK]** to save the new schedule.

Note that schedule objects will only take effect when used in policy definitions. Please refer to chapter "4 Firewall Policy Management" for details on managing policies.

Application Example

Objective – To allow a LAN user access to the FTP servers only between 9am to 5pm on weekdays

Step 1: **Add a new schedule**

Step 1.1: Select **"Policy Object > Schedule > Setting"**.

Step 1.2: Click **[New Entry]** to add a new schedule with the following parameters:

Schedule Name: FTP_Access

Start Time: 09:00 for **Monday** to **Friday**

End Time: 17:00 for **Monday** to **Friday**

Step 1.3: Click **[OK]** to save the new schedule.

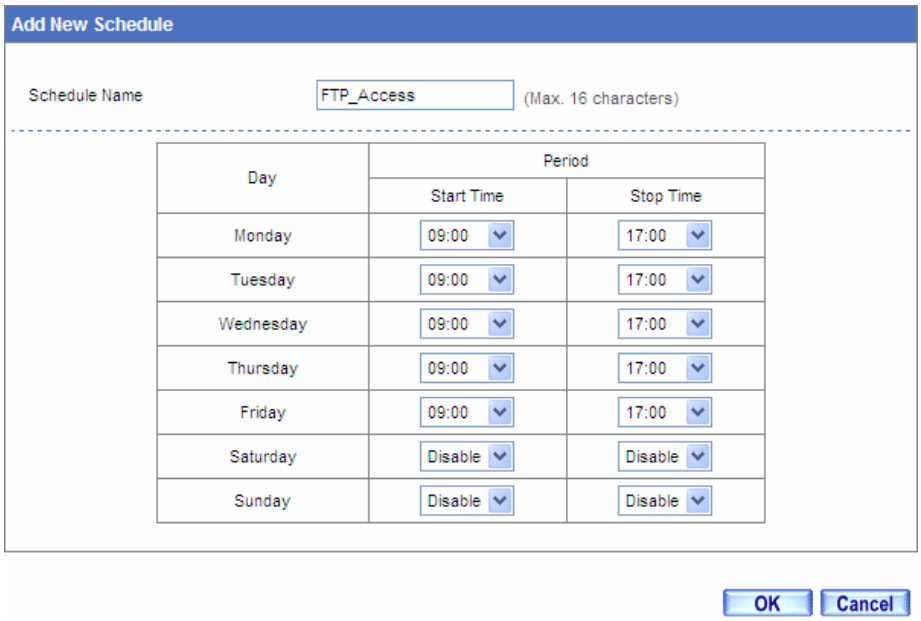


Figure 5.6

Step 2: **Add the new LAN address object**

Select "Policy Object > Address > LAN" and add a new LAN user "FTP_User" accordingly.

Step 3: **Add an outgoing policy**

Step 3.1: Select **"Policy > Outgoing"**.

Step 3.2: Click **[New Entry]** to add a new outgoing policy with the following parameters:

Source Address: FTP_User

Destination Address: Outside_Any

Service: FTP

Schedule: FTP_Access

Step 3.3: Click **[OK]** to save the new policy.

Results of Configuration

LAN user "FTP_User" can now access external FTP services every weekday from 9am to 5pm.

5.4 Quality of Service

Quality of Service (QoS) allows administrators to control the incoming and outgoing upstream and downstream bandwidth according to the WAN bandwidth.

You can define multiple QoS objects and assign different policies with the appropriate QoS object to control the distribution of bandwidth for that policy. An example of bandwidth distribution before and after QoS is applied is shown below:

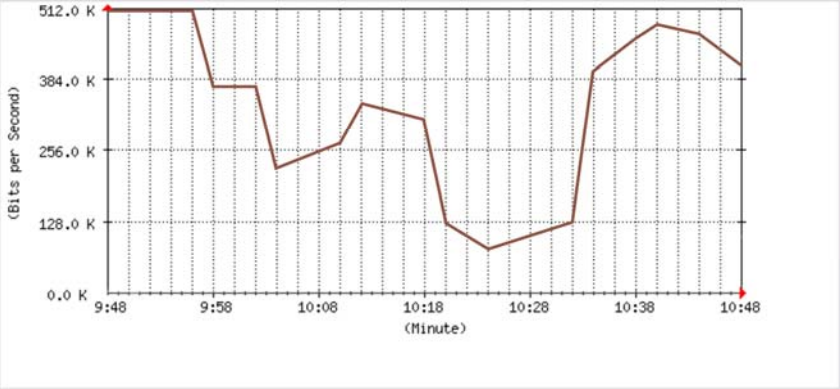


Figure 5.7
Flow before QoS

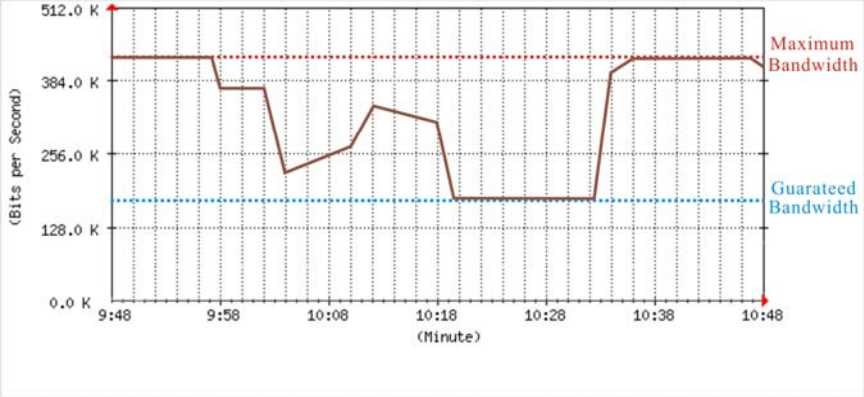


Figure 5.8
Flow after QoS (Max bw = 400Kbps, Guaranteed bw = 200Kbps)

As demonstrated from the two charts above, using QoS allows administrators to more efficiently utilize the network's bandwidth.

From the menu, select **"Policy Object > QoS > Setting"** to view a list of QoS objects. You can modify or remove the object by clicking on the appropriate buttons in the **configure** column.

Step 1: Click **[New Entry]** to add a new QoS object.

Step 2: Enter the **Name** of the QoS object.

Step 3: Configure the guaranteed and maximum **Downstream** and **Upstream Bandwidth** of **WAN1** and other enabled **WAN ports**. You should configure the bandwidth according to the bandwidth provided by the connected ISP. Note that the maximum bandwidth must be greater or equal to the guaranteed bandwidth

Step 4: Set the **QoS Priority** and click **[OK]** to save the new object.

Note that you must assign QoS objects to policies for the QoS settings to be effective.

Application Example

Objective – To set the upstream and downstream bandwidth of an outgoing policy

Step 1: **Add a new QoS object**

Step 1.1: Select **"Policy Object > QoS > Setting"**.

Step 1.2: Click **[New Entry]** to add a new QoS object with the **Name** Up_Down_BW

Step 1.3: Specify the guaranteed bandwidth (**G.Bandwidth**) and maximum bandwidth (**M.Bandwidth**) for both the **downstream** and **upstream bandwidth** of all enabled **WAN** ports.

Step 1.4: Select the **QoS Priority**.

Step 1.5: Click **[OK]** to save the new QoS object.

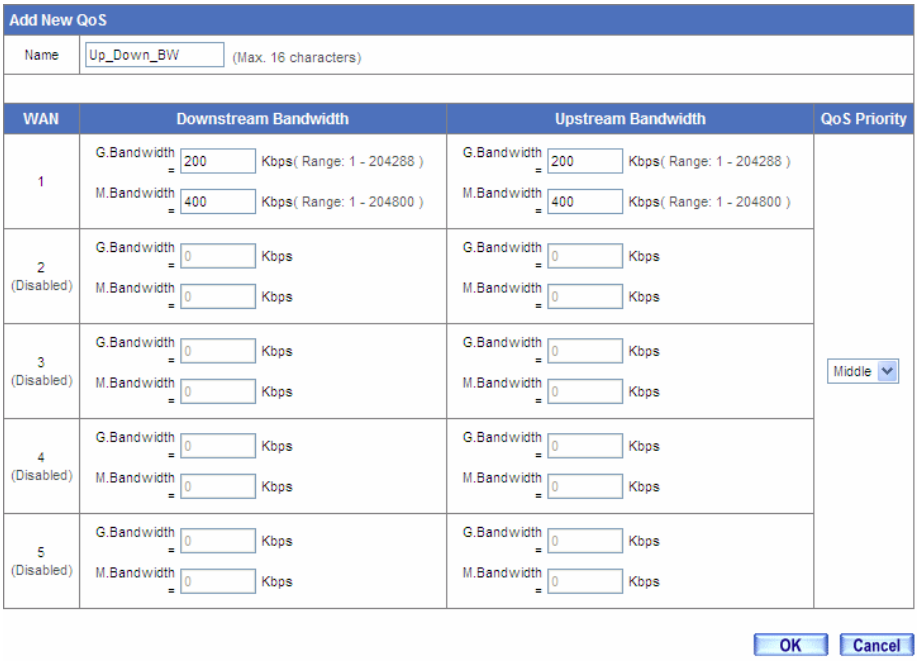


Figure 5.9

Step 2: **Add an outgoing policy**

Step 2.1: Select **"Policy > Outgoing"**.

Step 2.2: Click **[New Entry]** to add a new outgoing policy and configure the parameters accordingly.

Step 2.3: Select "Up_Down_BW" in the **QoS** field of the policy.

Step 2.4: Click **[OK]** to save the new policy.

Results of Configuration

The bandwidth of all source to destination traffic matching the policy will be regulated according to the QoS setting.

5.5 Content Blocking Objects

You can set up policies to allow or block specific contents from the network through the use of content blocking objects. These include filtering based on URL, download file types etc.

You must enable **content blocking** when defining policies to activate the use of these content blocking objects.

5.5.1 URL

Select **"Policy Object > Content Blocking > URL"** to view a list of content blocking URL defined in the system. You can modify or delete URL objects by clicking the appropriate button in the **configure** column.

Step 1: Click **[New Entry]**.

Step 2: Enter the **URL String**. To restrict a particular URL, enter either the complete domain name or the keyword of the website. To allow a particular URL, add the symbol "~" before the domain name or keyword.

Step 3: Click **[OK]** to save the new object.

SifoWorks U-series supports the use of the "*" meta-character in the URL string. That is, a URL string "www.gov.*" will match all URLs beginning with the string "www.gov.". An object with the **URL string** as "*" only will match all URLs. Such an object represents a "forbid all" URL content filter.

Note that when a policy is enabled with content blocking, the system matches the URL to the URL objects in a top-down fashion. Hence, the forbid all ("*") object must always be the last object in the list.

For example, the URL list has 2 objects, "*" and "~www.google.com". The system attempts to connect to URL "www.google.com".

Case 1: "~www.google.com" is above "*" on the list. The system will match the URL it is attempting to access with the URL object list in a top down manner. Hence, it matches the URL with the object "~www.google.com" and therefore, grants the access. The matching mechanism stops.

Case 2: "*" is above "~www.google.com" in the list. In a similar top down fashion, the system now attempts to match "*" with "www.google.com" first. This returns a match and the system will now forbid the access since "*" represents forbid all URLs.

Application Example

Objective – To restrict LAN users access to specific web sites

Step 1: **Add URL content blocking objects**

Step 1.1: Select **"Policy Object > Content Blocking > URL"**.

Step 1.2: Click **[New Entry]** and add a new **URL string** "~yahoo".

Step 1.3: Click **[OK]** to add the URL string into the list.

Step 1.4: Click **[New Entry]** and add a new **URL string** "~google"

Step 1.5: Click **[OK]** to add the URL string into the list.

Step 1.6: Click **[New Entry]** and add a new **URL string** "*"

Step 1.7: Click **[OK]** to add the URL string into the list.

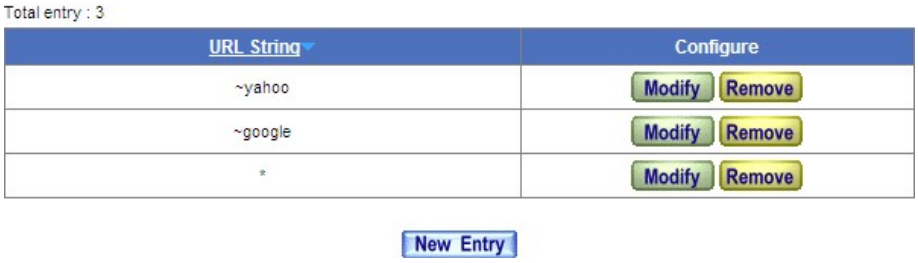


Figure 5.10

Step 2: **Add an outgoing policy**

Step 2.1: Select **"Policy > Outgoing"**.

Step 2.2: Click **[New Entry]** to add a new outgoing policy and configure the parameters as follows:

Source Address: Inside_Any

Destination Address: Outside_Any

Service: Any

Action, WAN Port: Permit All

Content Blocking: URL

Step 2.3: Click **[OK]** to save the new policy.

Results of Configuration

All internal users can now only access external websites with domain name containing "yahoo" or "google".

5.5.2 Script

Select **"Policy Object > Content Blocking > Script"**. You can specify whether to block the use of specific scripts when accessing the Internet. These include **Popup**, **Java**, **ActiveX** and **Cookie** scripts.

Click **[OK]** to save the configuration.

Application Example

Objective – To restrict LAN users access to scripts found in web sites

Step 1: **Configure the script content blocking object**

Step 1.1: Select **"Policy Object > Content Blocking > Script"**.

Step 1.2: Select to enable content blocking on the scripts "Popup", "ActiveX", "Cookie", and "Java".

Step 1.3: Click **[OK]** to save the setting.

Figure 5.11

Step 2: **Add an outgoing policy**

Step 2.1: Select **"Policy > Outgoing"**.

Step 2.2: Click **[New Entry]** to add a new outgoing policy and configure the parameters as follows:

Source Address: Inside_Any

Destination Address: Outside_Any

Service: Any

Action, WAN Port: Permit All

Content Blocking: Script

Step 2.3: Click **[OK]** to save the new policy.

Results of Configuration

All internal users are now restricted from accessing popup, java, cookie and activeX scripts when browsing websites.

5.5.3 Download Files

Select **"Content Blocking > Download"**. This function allows you to block the downloading of certain file types via the HTTP protocol.

Step 1: You can select the desired file **Extension** from the list.

Step 2: Select **All Types** to block the download of all file types.

Step 3: You can also select **Audio and Video Types** to block the download of audio or video files via HTTP.

Step 4: Click **[OK]** to save the configuration.

Application Example

Objective – To restrict LAN users from downloading video, audio and document files of all extension types via HTTP

Step 1: **Configure the download content blocking object**

Step 1.1: Select **"Policy Object > Content Blocking > Download"**.

Step 1.2: Select "All Types" to block the download of all video, audio and files with the extensions listed in the interface.

Step 1.3: Click **[OK]** to save the setting.

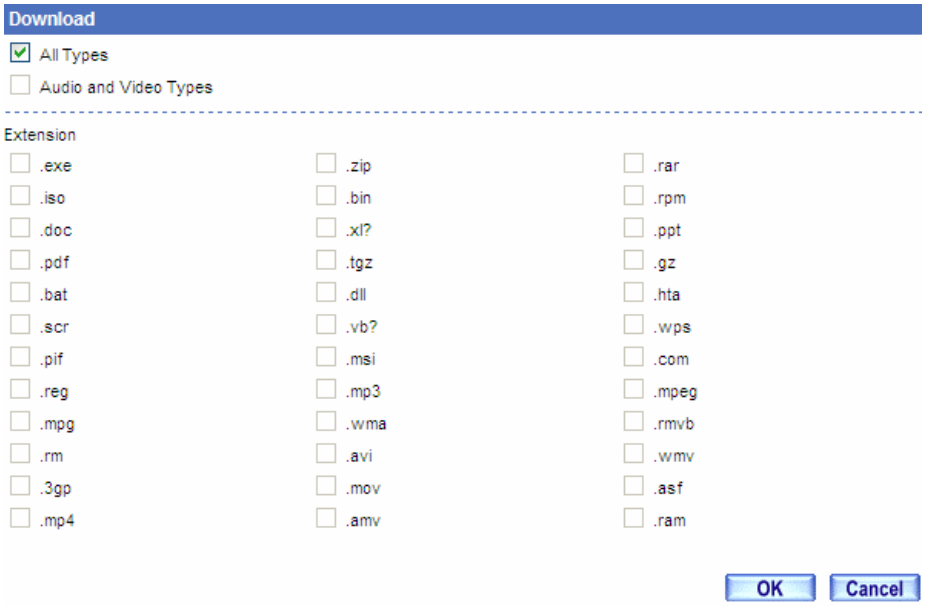


Figure 5.12

Step 2: **Add an outgoing policy**

Step 2.1: Select **"Policy > Outgoing"**.

Step 2.2: Click **[New Entry]** to add a new outgoing policy and configure the parameters as follows:

Source Address: Inside_Any

Destination Address: Outside_Any

Service: Any

Action, WAN Port: Permit All

Content Blocking: Download

Step 2.3: Click **[OK]** to save the new policy.

Results of Configuration

Internal users cannot download any video or audio files or files with the extension types specified in the system from external sources.

5.5.4 Upload Files

Select **"Content Blocking > Upload"**. Similar to the download blocking object, this function allows you to block the uploading of certain file types via the HTTP protocol.

Step 1: Select the desired file **Extension** from the list or click **All Types** to block the uploading of all files.

Step 2: Click **[OK]** to save the configuration.

Application Example

Objective – To restrict LAN users from uploading video, audio and document files of all extension types via HTTP

Step 1: **Configure the download content blocking object**

Step 1.1: Select **"Policy Object > Content Blocking > Upload"**.

Step 1.2: Select "All Types" to block the upload of all video, audio and files with the extensions listed in the interface.

Step 1.3: Click **[OK]** to save the setting.

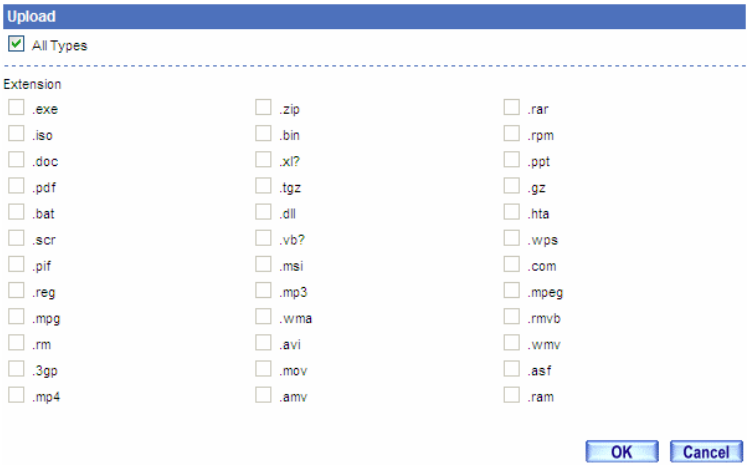


Figure 5.13

Step 2: **Add an outgoing policy**

Step 2.1: Select **"Policy > Outgoing"**.

Step 2.2: Click **[New Entry]** to add a new outgoing policy and configure the parameters as follows:

Source Address: Inside_Any

Destination Address: Outside_Any

Service: Any

Action, WAN Port: Permit All

Content Blocking: Upload

Step 2.3: Click **[OK]** to save the new policy.

Results of Configuration

Internal users cannot upload any video or audio files or files with the extension types specified in the system to external sources.

5.6 Application Blocking

SifoWorks U-series' system further allows administrator to block the use of commonly used applications such as instant messaging, peer-to-peer, audio/video, webmail, game, tunnel and remote control application software.

As with content blocking, you must enable application blocking when defining policies to activate the use of these objects.

Select **"Policy Object > Application Blocking > Setting"** from the left menu.

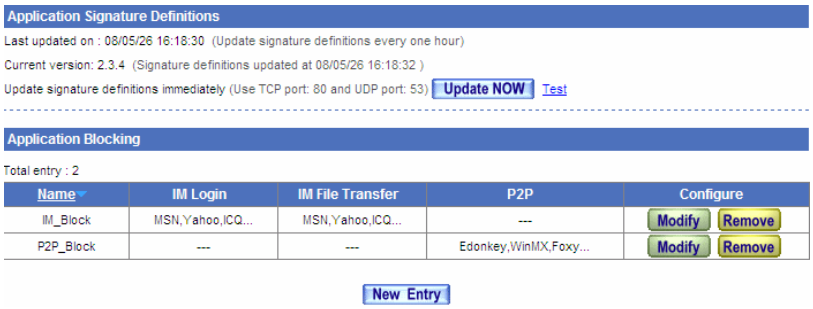


Figure 5.14

"Application Signature Definitions"

The top half of the interface displays information on the application signature definitions in the system including the **last update** time and the current definition file **version**. The system automatically updates signature definition files hourly. You can also click **[Update NOW]** to manually update the signature definitions in the system. Click **[Test]** to test the connectivity between the SifoWorks device and the update server.

"Application Blocking"

The second half of the interface displays a list of application blocking objects already defined by the administrators. You can modify or delete any object from the list by clicking the appropriate buttons in the **configure** column.

Step 1: Click **[New Entry]** to add a new application blocking object.

Step 2: Enter the **name** of the object.

Step 3: You can select to block the use of certain applications or file transfer via instant messaging applications by selecting the checkbox to the left of the application name. Note that blocking file transfer over instant messaging software is not supported by SifoWorks U100.

Step 4: Click **[OK]** to add the new object.

Application Example – Instant Messaging

Objective – To restrict LAN users from transferring messages and files via IM software

Step 1: **Add a new application blocking object**

Step 1.1: Select **"Policy Object > Application Blocking > Setting"**.

Step 1.2: Click **[New Entry]** to add a new application blocking object "IM_Block" and select all IM software listed in the interface to forbid users from logging in or transferring files over IM software.

Step 1.3: Click **[OK]** to save the new application object.

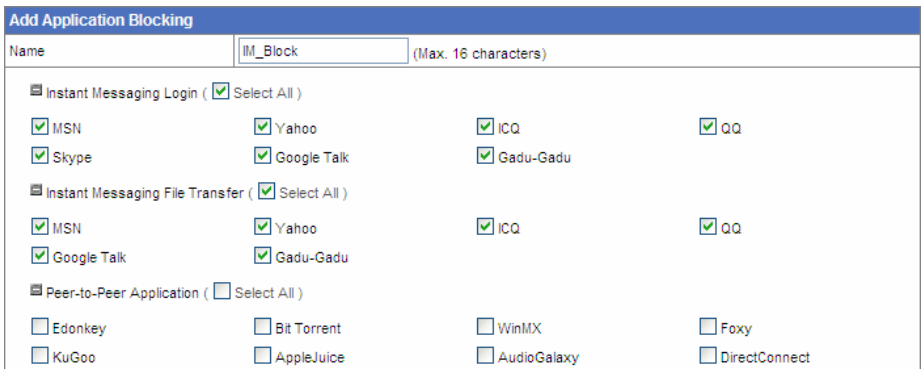


Figure 5.15

Step 2: **Add an outgoing policy**

Step 2.1: Select **"Policy > Outgoing"**.

Step 2.2: Click **[New Entry]** to add a new outgoing policy and configure the parameters as follows:

Source Address: Inside_Any

Destination Address: Outside_Any

Service: Any

Action, WAN Port: Permit All

Application Blocking: IM_Block

Step 2.3: Click **[OK]** to save the new policy.

Results of Configuration

Internal users are now unable to login or transfer files via the instant messaging software "MSN", "yahoo", "ICQ", "QQ", "Skype", "Google Talk" and "Gadu-Gadu".

Application Example – P2P Blocking

Objective – To restrict LAN users from accessing internet resources via P2P software

Step 1: **Add a new application blocking object**

Step 1.1: Select **"Policy Object > Application Blocking > Setting"**.

Step 1.2: Click **[New Entry]** to add a new application blocking object "P2P_Block"

Step 1.3: Select the P2P software to block.

Step 1.4: Click **[OK]** to save the new application blocking object.

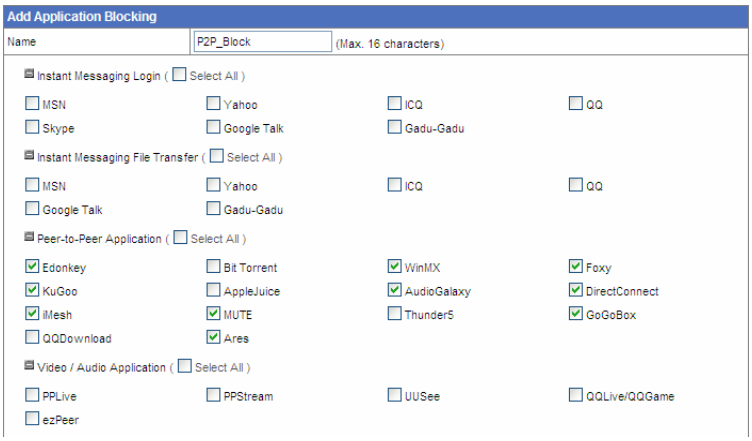


Figure 5.16

Step 2: **Add an outgoing policy**

Step 2.1: Select **"Policy > Outgoing"**.

Step 2.2: Click **[New Entry]** to add a new outgoing policy and configure the parameters as follows:

Source Address: Inside_Any

Destination Address: Outside_Any

Service: Any

Action, WAN Port: Permit All

Application Blocking: P2P_Block

Step 2.3: Click **[OK]** to save the new policy.

Results of Configuration

Internal users are now unable to use the selected P2P software to access Internet resources.

Chapter

6

Authentication

In the authentication function group, you can set up basic authentication settings, authentication server settings and authentication users. Both internal and remote users can be set up to require authentication before he can access the Internet.

To activate the use of the authentication user and user group objects, they must be used in firewall policies or VPN connections.

6.1 Internal Authentication Server Settings

Select **"Policy Object > Authentication > Auth Setting"** to enter the configuration interface. Here, you can manage SifoWorks U-series' authentication server settings including the parameters:

Authentication Port: Authentication server port number

Re-login if idle for: The idle time after which an authenticated user is required to re-login.

Re-login after user has logged in for: The system will require the user to re-login when this amount of time has passed since the user was last authenticated.

Deny multi-login: If enabled, an auth user will not be able to login to the system if a login session already exists for this user.

Redirect successfully authenticated users to URL: Enter the URL to redirect the user to upon successful authentication.

Message to display upon successful login: Enter the message to display to the user when his login is successful.

Click **[OK]** to save the configuration.

6.2 Using an External RADIUS Server

SifoWorks also allows administrator to use an external RADIUS server as the authentication server. RADIUS users will need to be authenticated through the external RADIUS server before he is allowed access to the Internet. You should set up your external RADIUS server accordingly.

Step 1: Select **"Policy Object > Authentication > RADIUS"**.

Step 2: **Enable RADIUS Server Authentication**.

Step 3: Enter the **Server** IP address/domain name and **Port**.

Step 4: Enter the **Shared Secret** key for the authentication between SifoWorks U-series and the RADIUS server.

Step 5: Select whether to enable the use of the external RADIUS server via a wireless network.

Step 6: Click **[OK]** to save the configuration.

Application Example

Objective – To authenticate users via a Windows RADIUS server

Step 1: **Set up the external RADIUS server**

Step 1.1: Set up your windows RADIUS server. Add a new RADIUS client with the client IP address as SifoWorks U-series' LAN IP address.

Step 1.2: Set the **Shared Secret**.

Step 1.3: Add a new remote access policy on the RADIUS server with the following parameters:

Access method: Ethernet

User or Group Access: User

Authentication Methods: MD5-Challenge

Step 1.4: Edit the policy properties to enable **Grant remote access permission**. Remove the existing **Policy conditions** and click **[Add]** to add a new condition

Step 1.5: Add the **service type**: Authenticate Only

Step 1.6: Click **[Edit Profile]** and select **unencrypted authentication (PAP, SPAP)** from the *Authentication* tab in the dialog box that is displayed.

Step 1.7: Add the authentication users using this RADIUS server.

Tip: *Please refer to your RADIUS server's manual for configuration details*

Step 2: **Set up the RADIUS server on SifoWorks**

Step 2.1: Select **"Policy Object > Authentication > RADIUS"** and enter the RADIUS server's information accordingly. Note that the **Shared Secret** value must be the same as that configured on the RADIUS server above.

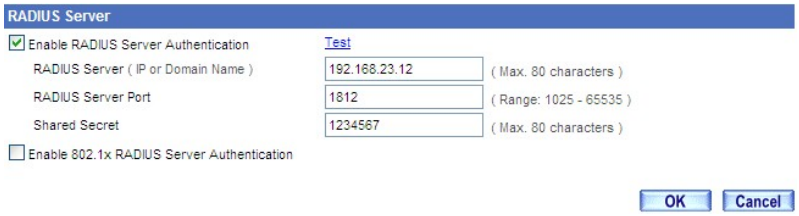


Figure 6.1

Step 3: **Add the authentication user group**

Step 3.1: Select **"Policy Object > Authentication > User Group"**.

Step 3.2: Add a new authentication user group with the **name** "Radius" representing all authentication users of the RADIUS server.

Step 3.3: From the **<--- Available Authentication User --->** list, select "(Radius User)" and click **[Add>>]** to add the RADIUS users to the group.

Step 4: **Add an outgoing policy**

Step 4.1: Select **"Policy > Outgoing"**.

Step 4.2: Click **[New Entry]** to add a new outgoing policy and configure the parameters as follows:

Source Address: Inside_Any

Destination Address: Outside_Any

Service: Any

Action, WAN Port: Permit All

Authentication User: Radius

Step 4.3: Click **[OK]** to save the new policy.

Results of Configuration

When a radius user attempts to access the Internet through a web browser, the browser will display an Authentication page, prompting the user for his **user name** and **password**. The user can only access the Internet after he is successfully authenticated by the RADIUS server.

6.3 Using an External POP3 Server

You can also set up a POP3 authentication server as the external authentication server. POP3 users will need to be authenticated through the external POP3 server before he is allowed access to the Internet.

Note that for SifoWorks U100 devices, only 1 external POP3 server can be configured. Multiple POP3 servers can be added for other SifoWorks U-series models.

Step 1: Select **"Policy Object > Authentication > POP3"**.

Step 2: Click **[New Entry]** to add a new POP3 server.

Step 3: Enter the **Server IP** address or **Domain Name** and server **Port**.

Step 4: You can click **[Test]** to test for the connectivity of SifoWorks to the configured POP3 server. Click **[OK]** to save the configuration.

Application Example

Objective – To authenticate users via a POP3 server

Step 1: **Set up the POP3 server**

Step 1.1: Select **"Policy Object > Authentication > POP3"**.

Step 1.2: Click **[New Entry]** and configure the POP3 server's parameters accordingly.

Step 1.3: Click **[OK]** to save the configuration.

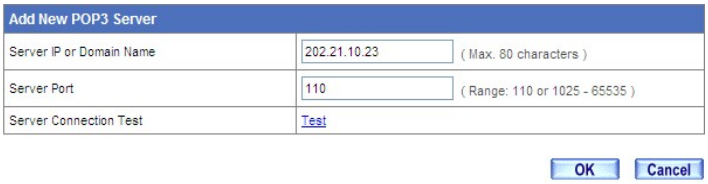


Figure 6.2

Step 2: **Add the authentication user group**

Step 2.1: Select **"Policy Object > Authentication > User Group"**.

Step 2.2: Add a new authentication user group with the **name** "POP3_Auth" representing all authentication users of the POP3 server.

Step 2.3: From the **<--- Available Authentication User --->** list, select "(POP3 User)" and click **[Add>>]** to add the POP3 users to the group.

Step 3: **Add an outgoing policy**

Step 3.1: Select **"Policy > Outgoing"**.

Step 3.2: Click **[New Entry]** to add a new outgoing policy and configure the parameters as follows:

Source Address: Inside_Any

Destination Address: Outside_Any

Service: Any

Action, WAN Port: Permit All

Authentication User: POP3_Auth

Step 3.3: Click **[OK]** to save the new policy.

Results of Configuration

When a POP3 user attempts to access the Internet through a web browser, the browser will display an Authentication page, prompting the user for his **user name** and **password**. The user can only access the Internet after he is successfully authenticated by the POP3 server.

6.4 LDAP Server

Note: *SifoWorks U100 does not support the use of LDAP authentication servers.*

SifoWorks also allows administrator to use an external LDAP server as the authentication server. LDAP users will need to be authenticated through the external LDAP server before he is allowed access to the Internet. You should set up your external LDAP server accordingly.

Step 1: Select **"Policy Object > Authentication > LDAP"**.

Step 2: **Enable LDAP Server Authentication**.

Step 3: Enter the **Server** IP address or domain name and **Port**.

Step 4: Specify the **Name** (baseDN) of the starting point of searches on the LDAP server and **Filter**.

Step 5: Enter the **User** name and **Password** for SifoWorks to authenticate itself with the LDAP server.

Step 6: Click **[OK]** to save the configuration.

Application Example

Objective – To authenticate users via a Windows LDAP server

Step 1: **Set up the LDAP server**

Step 1.1: Install and set up your windows LDAP server.

Step 1.2: Add the authentication users using this LDAP server.

Tip: *Please refer to your LDAP server's manual for configuration details.*

Step 2: **Set up the LDAP server on SifoWorks**

Step 2.1: Select **"Policy Object > Authentication > LDAP"** and enter the LDAP server's information accordingly.

Tip: *You can click **Test** to test if SifoWorks and the LDAP server are communicating correctly.*

Step 3: **Add the authentication user group**

Step 3.1: Select **"Policy Object > Authentication > User Group"**.

Step 3.2: Add a new authentication user group with the **name** "LDAP_Auth" representing all authentication users of the LDAP server.

Step 3.3: From the **<--- Available Authentication User --->** list, select "(LDAP User)" and click **[Add>>]** to add the LDAP users to the group.

Step 4: **Add an outgoing policy**

Step 4.1: Select **"Policy > Outgoing"**.

Step 4.2: Click **[New Entry]** to add a new outgoing policy and configure the parameters as follows:

Source Address: Inside_Any

Destination Address: Outside_Any

Service: Any

Action, WAN Port: Permit All

Authentication User: LDAP_Auth

Step 4.3: Click **[OK]** to save the new policy.

Results of Configuration

When a LDAP user attempts to access the Internet through a web browser, the browser will display an Authentication page, prompting the user for his **user name** and **password**. The user can only access the Internet after he is successfully authenticated by the RADIUS server.

6.5 Authentication Users

You must set up the users who are required to be authenticated by the authentication servers for use in the formulation of firewall policies and VPN connections.

Select **"Policy Object > Authentication > User"** to view the list of authentication user objects already defined in the system. You can modify or delete an object from the list by clicking on the appropriate buttons in the **Configure** column.

Step 1: Click **[New Entry]** to add a new authentication user.

Step 2: Enter the authentication **User Name** and **Password**.

Step 3: Retype the password to **Confirm**.

Step 4: Click **[OK]** to save the new authentication user.

Note: *If an external RADIUS/POP3/LDAP server is to be used, please add the authentication users directly on your external server.*

When authentication users (internal/remote) attempt to access external websites, they will be automatically redirected to the login page where they can enter their authentication information. Upon successful authentication, their web browser will be automatically redirected to the website they were attempting to access.

6.6 Authentication User Groups

You can also group the authentication users into user groups for easier management. Select **"Policy Object > Authentication > User Group"** to view a list of authentication user group objects in the system. You can modify or delete an object from the list by clicking on the appropriate buttons in the **Configure** column.

Step 1: Click **[New Entry]** to add a new user group.

Step 2: Enter the group **Name**.

Step 3: Select the authentication users to add into the group from the **<--- Available Authentication User --->** list. Click **[Add>>]** to move the selected users into the **<--- Selected Authentication User --->** list.

Note that "(Radius User)" refer to users defined on the external RADIUS server and "(POP3 User)" refer to users on the external POP3 server.

The available authentication user list displays all authentication user objects added in the system. All user members of this group are displayed in the selected authentication user list.

Step 4: Click **[OK]** to add the new authentication user group.

Application Example

Objective – To ensure that specific LAN users are authenticated before accessing external resources

Step 1: **Add the authentication users**

Step 1.1: Select **"Policy Object > Authentication > User"**.

Step 1.2: Click **[New Entry]** to add an authentication user with the appropriate **user name** and **password**.

Step 1.3: Click **[OK]** to add the new authentication user.

Step 1.4: Repeat steps 1.1 to 1.3 to add more authentication users.

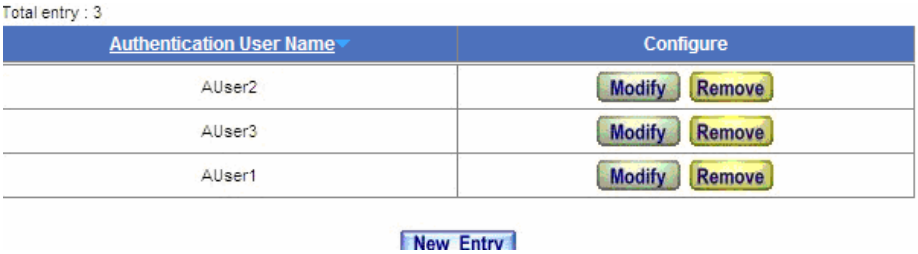


Figure 6.3

Step 2: **Add an authentication user group**

Step 2.1: Select **"Policy Object > Authentication > User Group"**.

Step 2.2: Click **[New Entry]** to add a new authentication user group "Auth_LAN_Group".

Step 2.3: Select the users added in the previous step from the **<--- Available Authentication User --->** and click **[Add>>]** to add them as members of this group.

Step 2.4: Click **[OK]** to save the new group.

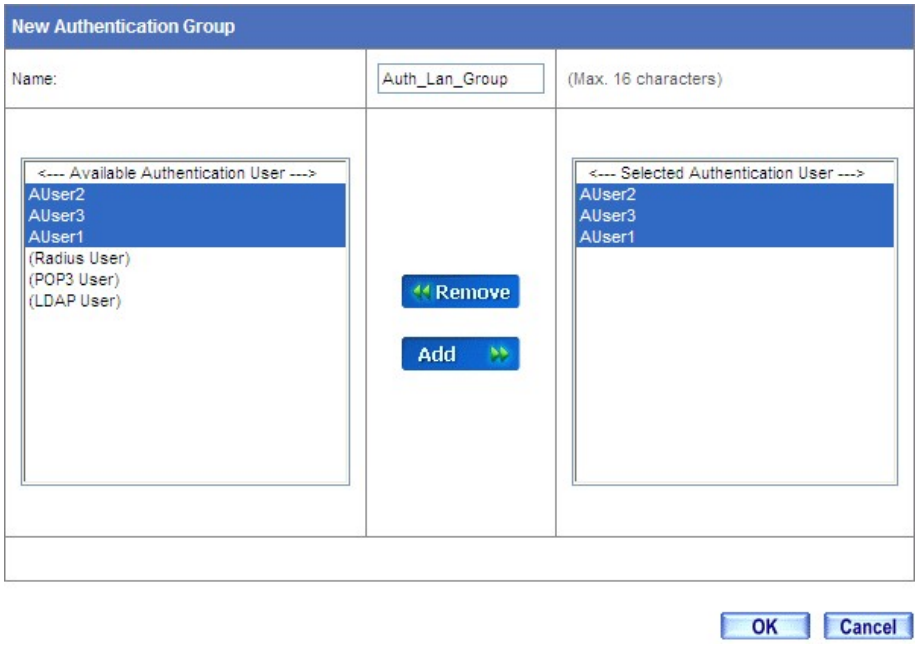


Figure 6.4

Step 3: **Add an outgoing policy**

Step 3.1: Select **"Policy > Outgoing"**.

Step 3.2: Click **[New Entry]** to add a new outgoing policy and configure the parameters as follows:

Source Address: Inside_Any

Destination Address: Outside_Any

Service: Any

Action, WAN Port: Permit All

Authentication User: Auth_LAN_Group

Step 3.3: Click **[OK]** to save the new policy.

Results of Configuration

When these users attempt to access external sites, their web browser will display an authentication window. These users must correctly enter their user name and password to be authenticated. Upon successful authentication, users will then be redirected to the site they were accessing.

Chapter

7

Virtual Service

Often, the IP addresses provided by the ISP are insufficient for an enterprise's entire network. Therefore an enterprise usually assigns a private IP address to each host and server in its network and uses the network address translation (NAT) function to route the addresses to the actual physical IP address. Private IP addresses are also favored as enterprises do not want to allow direct external accesses to its internal servers for security reasons.

SifoWorks virtual server achieves this requirement. The actual IP address of the system's WAN interface is set as the virtual server's IP address. SifoWorks then translates this public IP address into the private IP address of the server in the LAN network. Note that virtual server objects defined are only effective when used in access policies.

7.1 Mapped IP

Here, you can set up the private LAN IP address to map the public WAN interface IP address to. External users connect to SifoWorks' WAN interface via the public IP address. The system then uses the configuration in this function to map the connection to the LAN's private IP address.

Select **"Policy Object > Virtual Server > Mapped IP"**. From the list, you can edit or delete any mapped IP object by clicking on the appropriate buttons in the **configure** column.

Step 1: Click **[New Entry]** to add a new mapping.

Step 2: Select the WAN interface. Enter the public **WAN IP** address accessible by external users. You can click the **[Assist]** link for a list of WAN IP addresses available for the selected interface.

Step 4: Enter the private LAN IP address to **Map** to.

Step 5: Click **[OK]** to save the new mapping.

Application Example

Objective – Set up the system such that it maps the public IP address to a private LAN IP address from which the FTP and Web services can be accessed

In this example, external users access the SifoWorks' WAN interface (61.11.11.11). We set up the system such that it maps this public IP address to a private LAN IP address (192.168.1.10) from which the FTP and Web services can be accessed. The desired network topology is shown below:

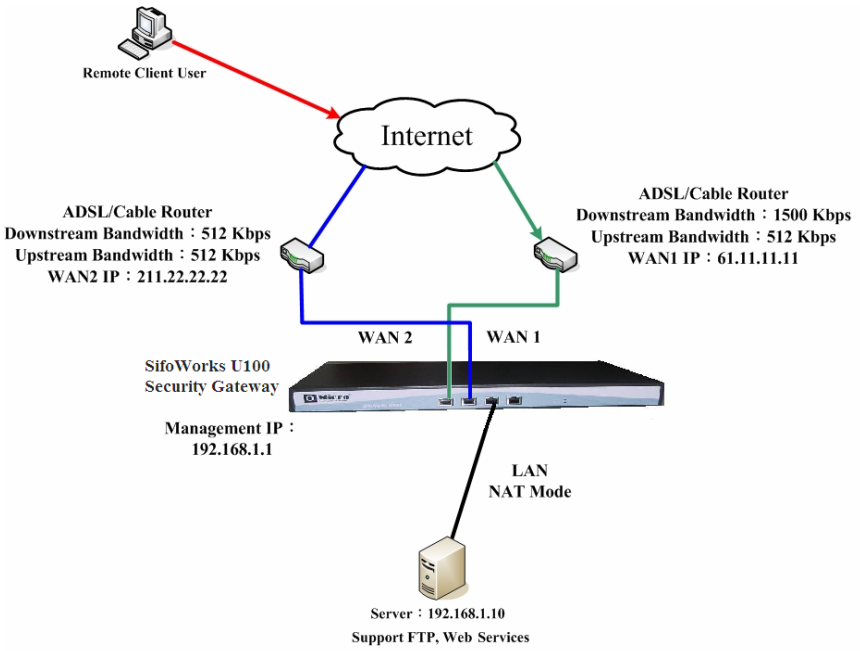


Figure 7.1

Step 1: **Set up a LAN server providing multiple services**

The server's network adaptor IP address is 192.168.1.100. DNS setting should correspond to the WAN DNS server.

Step 2: **Set up a LAN Address Object**

Step 2.1: Select **"Policy Object > Address > LAN"**.

Step 2.2: Add a new LAN address object with **name** "Internal_Server"

Step 2.3: Enter the **IP address** "192.168.1.100", **netmask** "255.255.255.255" and the appropriate **MAC address**.

Step 3: **Set up a Virtual Service Mapped IP**

Step 3.1: Select **"Policy Object > Virtual Service > Mapped IP"**.

Step 3.2: Click **[New Entry]** to add a new mapping.

Step 3.3: Enter the **WAN IP** (61.11.11.11) and enter the LAN IP address (192.168.1.10) in the **Map to Virtual IP** field.

Step 3.4: Click **[OK]** to add the new object.

Figure 7.2

Step 4: **Services**

Step 4.1: Select **"Policy Object > Service > Group"**.

Step 4.2: Add a new service group for FTP and Web services with the **name** "Main_Service".

Step 4.3: Select the services "DNS", "FTP" and all Web based services such as "HTTP" as the group members.

Step 4.4: Click **[OK]** to add the service group.

Step 5: **Setting up the Policies**

Step 5.1: Select **"Policy > Incoming"** and add an incoming policy to enable the mapping of incoming traffic from the public WAN IP address to the private LAN IP address. The configuration for the policy is as follows:

Source Address: Outside_Any

Destination Address: Internal_Server (the Virtual service Mapped IP object defined earlier)

Service: Main_Service

Action: Permit

Results of Configuration

External users will now be able to access the internal FTP and Web servers on the LAN (192.168.1.100) subnet using the public IP address.

7.2 One-to-Many Virtual Server Mappings

Using the virtual service function, administrators can also set up such that a single public IP address can be mapped to up to four different LAN network servers providing the same services. Using this one-to-many capability, the virtual server can balance the network load between up to four internal servers providing the same services. This reduces the load on a single server and introduces redundancy into the system.

Select **"Policy Object > Virtual Server > Server 1"**.

Step 1: From the top of the list, the public WAN IP address for this virtual server is shown. For the **"Server 1"** menu option, this corresponds to the IP address configured for the WAN1 interface and cannot be modified. For menu options **"Server 2"**, **"Server 3"** and **"Server 4"**, click the button from the top of the corresponding list to specify this address.

Step 2: Click **[New Entry]** to set up the private server providing the service.

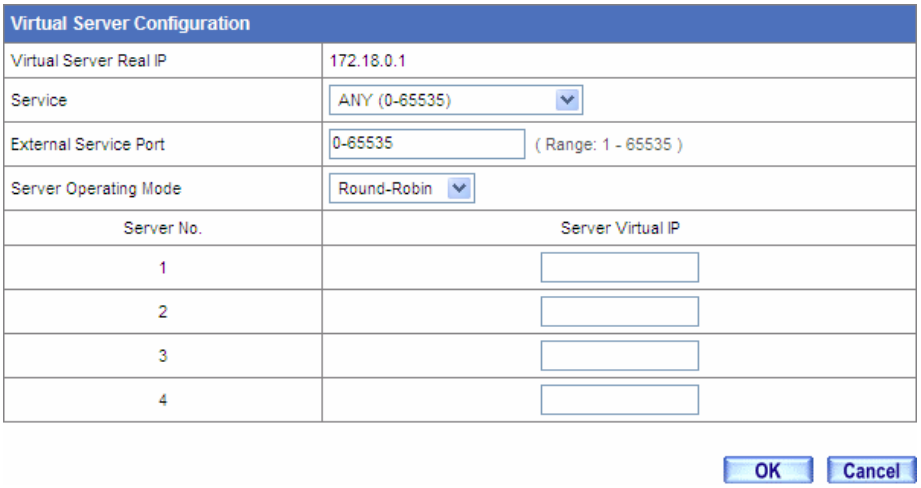


Figure 7.3

Step 3: Select the **Service** to be provided by this server. Please refer to section "5.2 Service Objects" on setting up service objects.

Step 4: Specify the **External Service Port** number that is made public to the external users.

Step 5: Select the **Server Operating Mode** to specify the load balancing mechanism for this virtual server.

Step 6: Specify the **IP** addresses of up to 4 internal **Server** for load balancing.

Step 7: Click **[OK]** to save this virtual service object.

Tip: *From the **"Policy Object > Virtual Server**" sub menu, you can map up to 4 public WAN IP addresses (by choosing **"Server1"** to **"Server4"**) to the private IP addresses of the internal servers. Note that each **"Server"** menu option can only be configured with 1 public WAN IP address.*

The virtual servers configured here will only be effective if used when specifying the source or destination addresses in policies. Please refer to chapter "4 Firewall Policy Management" for details on policy management.

Application Example 1

Objective – Using the virtual server mapped to several LAN servers (192.168.1.101-104) to provide web service. Traffic load is balanced between the servers using a round-robin mode.

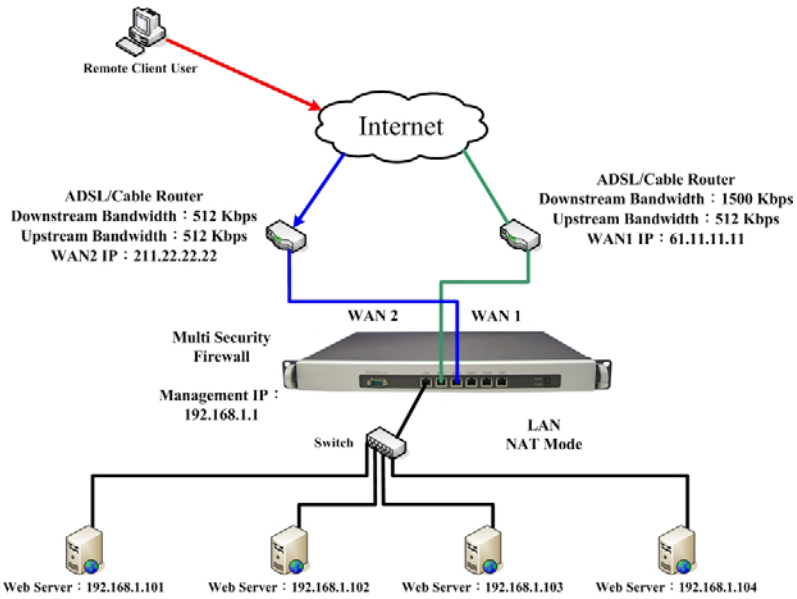


Figure 7.4

Step 1: **Set up the virtual server**

Step 1.1: Select **"Policy Object > Virtual Server > Server 2"**.

Step 1.2: Click **[Click here to configure]** to configure the virtual server real IP address as 211.22.22.23.

Step 1.3: Click **[OK]** to save the setting

Step 2: **Add the LAN servers providing the web service**

Step 2.1: Click **[New Entry]** and configure the parameters as follows:

Service: HTTP(80)

External service port: 8080

Server Operating Mode: Round-Robin

Server Virtual IP 1: 192.168.1.101

Server Virtual IP 2: 192.168.1.102

Server Virtual IP 3: 192.168.1.103

Server Virtual IP 4: 192.168.1.104

Step 2.2: Click **[OK]** to save the setting.

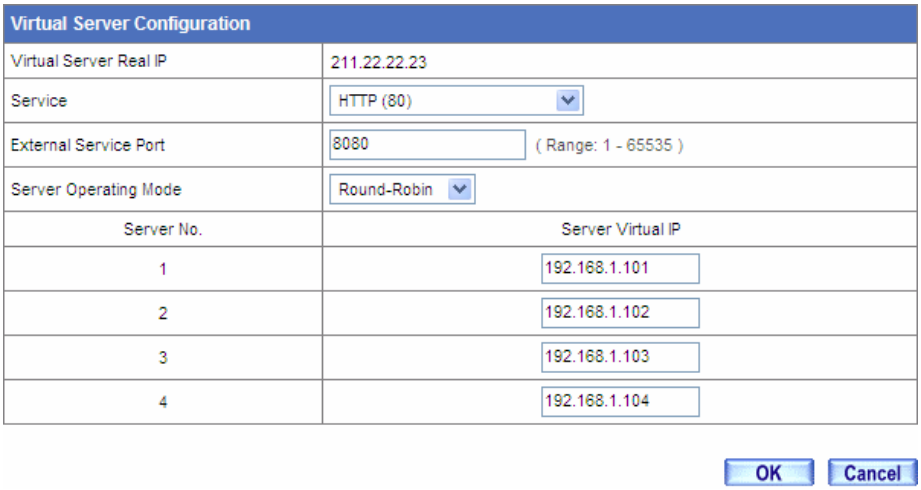


Figure 7.5

Step 3: **Add an incoming policy**

Step 3.1: Select **"Policy > Incoming"**

Step 3.2: Click **[New Entry]** to add an incoming policy configured as follows:

Source Address: Outside_Any

Destination Address: Virtual Server 2

Service: HTTP (8080)

Action: Permit All

Step 4: **Add a LAN address group object (LAN servers)**

Step 4.1: Select **"Policy Object > Address > LAN Group"**.

Step 4.2: Click **[New Entry]** to add a LAN address group "Server_Group" containing the address of the 4 LAN servers.

Step 4.3: Click **[OK]** to save the group.

Step 5: **Add an outgoing policy**

Step 5.1: Select **"Policy > Outgoing"**.

Step 5.2: Click **[New Entry]** to add a new outgoing policy with the following configurations:

Source Address: Server_Group

Destination Address: Outside_Any

Service: HTTP (8080)

Action, WAN Port: Permit All

Step 5.3: Click **[OK]** to save the setting.

Results of Configuration

External users can now access the web service through the virtual server IP 211.22.22.22. SifoWorks will distribute the accesses between the four servers in a round robin manner.

Application Example 2

Objective – To allow external users to communicate with internal users via VoIP (192.168.1.100)

Step 1: **Set up a LAN Address Object**

Step 1.1: Select **"Policy Object > Address > LAN"**.

Step 1.2: Add a new LAN address object with **name** "VoIPServer"

Step 1.3: Enter the **IP address** "192.168.1.100", **netmask** "255.255.255.255" and the appropriate **MAC address**.

Step 2: **Add a VoIP service**

Step 2.1: Select **"Policy Object > Service > custom"**.

Step 2.2: Click **[New Entry]** to add a new service with the following configuration:

Name: VoIP_Svc

Protocol 1: Select TCP. **Server Port** 1720:1720

Step 2.3: Click **[OK]** to add the new object.

Step 3: **Virtual Service**

Step 3.1: Select **"Policy Object > Virtual Server > Server 2"**.

Step 3.2: Click **[Click here to configure]** to configure the virtual server real IP address as 61.11.11.12.

Step 3.3: Click **[OK]** to save the setting

Step 4: **Add the LAN servers providing the web service**

Step 4.1: Click **[New Entry]** and configure the parameters as follows:

Service: VoIP_Svc

Server Virtual IP 1: 192.168.1.100

Step 4.2: Click **[OK]** to save the setting.

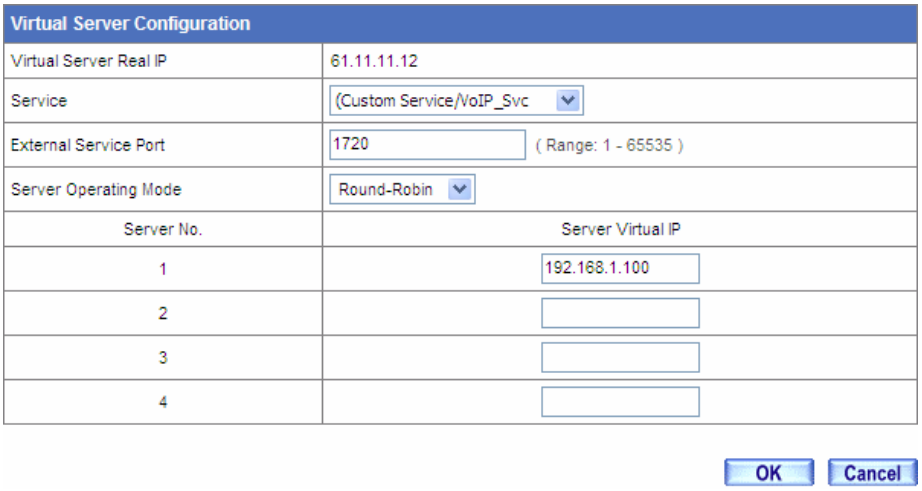


Figure 7.6

Step 5: **Add an incoming policy**

Step 5.1: Select **"Policy > Incoming"**

Step 5.2: Click **[New Entry]** to add a new incoming policy with the following configurations:

Source Address: Outside_Any

Destination Address: Virtual Server 2

Service: VoIP_Svc

Action: Permit All

Step 5.3: Click **[OK]** to save the setting.

Step 6: **Add an outgoing policy**

Step 6.1: Select **"Policy > Outgoing"**.

Step 6.2: Click **[New Entry]** to add a new outgoing policy with the following configurations:

Source Address: VoIP

Destination Address: Outside_Any

Service: VoIP_Svc

Action, WAN Port: Permit All

Step 6.3: Click **[OK]** to save the setting.

Results of Configuration

External users can now use the virtual IP 61.11.11.12 to communicate with internal users via VoIP.

Chapter

8

IPsec VPN

On the SifoWorks U-series system, you can set up an IPsec based virtual private network (VPN) to provide users with secured remote access into the LAN.

As external users need to be authenticated before they are allowed remote access into the LAN, you must first configure the authentication server on the SifoWorks U-series system. Please refer to chapter "6 Authentication" for details on configuring the authentication servers.

8.1 One-Step IPsec VPN

For the ease of setting up a basic IPsec VPN connection, SifoWorks U-series provides a "**one-step IPSec**" function. This function displays a one page configuration interface where you can specify the parameters such as source address, destination address and preshared key, needed to configure a basic IPsec VPN connection.

From the menu, select **"Policy Object > VPN > One-Step IPSec"** to view the configuration interface.

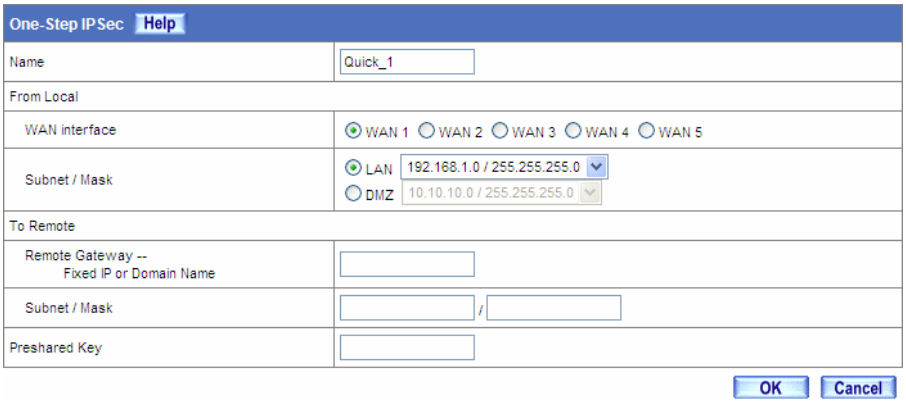


Figure 8.1

Step 1: Enter the **Name** of this IPsec VPN.

Step 2: Select the local device's source **WAN interface** to be used when establishing connections through this IPsec VPN.

Step 3: Select whether the source addresses of this VPN are **LAN** addresses or **DMZ** addresses. Also select the corresponding **subnet / mask** from the drop down menu.

Step 4: Specify the IP address or domain name of the **destination gateway**. Also enter the destination **subnet / mask**.

Step 5: Enter the **Preshared Key** to be used by the peers in this VPN connection.

Step 6: Click **[OK]** to save the settings.

The system automatically creates the necessary IPsec Autokey, VPN trunk and policies to set up this IPsec connection using the parameters specified above and the following default values:

1. **Mode:** Main mode
2. **Authentication Method:** Preshare
3. **ISAKMP Algorithm:** DES + MD5 + Group 1
4. **IPSec Algorithm:** DES + MD5

8.2 VPN Wizard

Note: *This function is not available for SifoWorks U100 devices.*

SifoWorks U-series provides a VPN wizard to simplify the setting up of an IPsec VPN on the system. Select **"Policy Object > VPN > VPN Wizard"** to begin using the wizard.

Step 1: Select whether you want to set up an IPsec autokey, PPTP server or a PPTP client and click **[Next>]** to move to the next step.

Step 2: Create the VPN settings. The configuration available in this step differs depending on the selection in **step 1**. For IPsec autokey configuration details please refer to section "8.3 IPsec AutoKey". For PPTP server configuration details, please refer to section "8.6 PPTP Server". For PPTP client configuration details, please refer to section "8.7 PPTP Client".

Click **[Next>]** to move to the next step or click **[<Back]** to return to the previous step.

Step 3: Create the VPN trunk(s) and click **[Next>]** to move to the next step. Please refer to section "8.8 Trunk" for details on VPN trunk configuration.

Step 4: Select the VPN trunks to be used for remote connections over this VPN and click **[Finish]** to complete the VPN wizard. The system will build a VPN connection based on the configurations made in this wizard.

8.3 IPsec AutoKey

To create a VPN connection, the system administrator must first set up IPsec Autokey. The autokey IKE (Internet Key Exchange) protocol provides a method of negotiating the keys to set up a secured VPN tunnel between 2 security gateways.

Select **"Policy Object > VPN > IPSec Autokey"** to view the list of IPsec autokeys in the system. You can modify or edit an IPsec object by clicking the appropriate buttons in the **Configure** column.

Step 1: Click **[New Entry]** to add a new autokey. The first half of the configuration interface consists of essential fields.

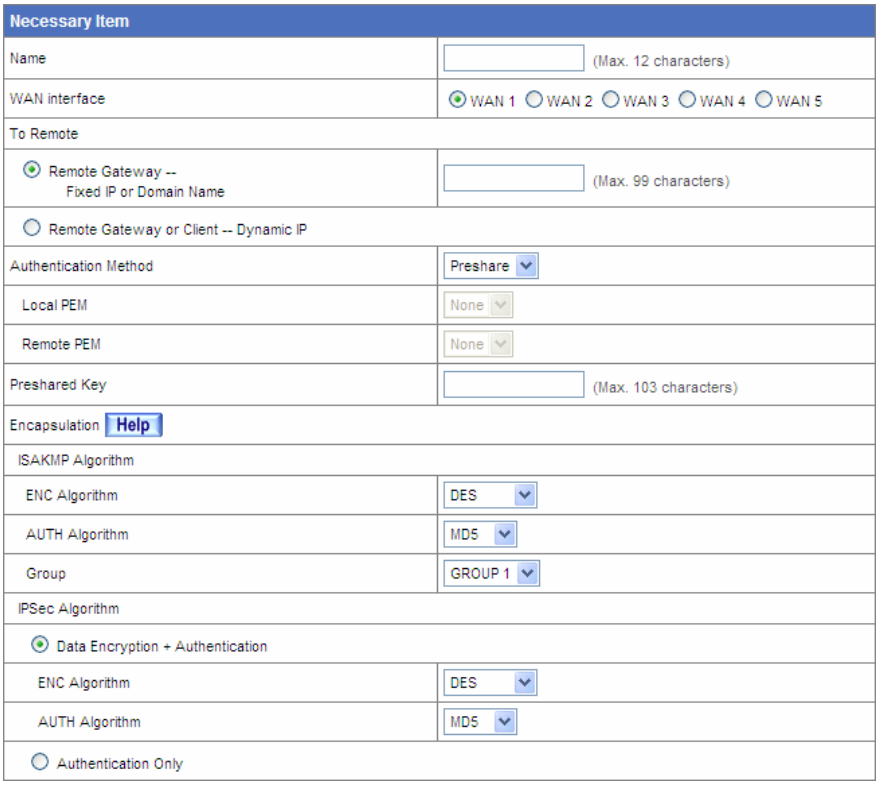


Figure 8.2

Step 2: Set up the parameters as follows:

Name:	Name of this autokey
WAN Interface:	The WAN interface used for VPN traffic
To Remote:	IP address of the destination gateway. You can either select whether the gateway has a **Fixed IP or Domain Name** or a **Dynamic IP**.
Authentication Method:	Select the authentication method between the two gateways
Preshared Key:	Preshared key between SifoWorks and the remote gateway. The preshared key configured on both gateways must be the same for the VPN connection to be established
Encapsulation / ISAKMP:	Select the algorithms used to encapsulate the data transferred during the set up of security associations (SA) between the two gateways. Note that the **Group** selected must be identical for both gateways
Encapsulation / IPSec Algorithm:	Select the algorithms used to encapsulate the data transferred during the IPsec tunnel set up. You can select whether to encapsulate both authentication and normal data traffic or only authentication data.

Step 3: You can continue to configure the optional parameters of the autokey as follows:

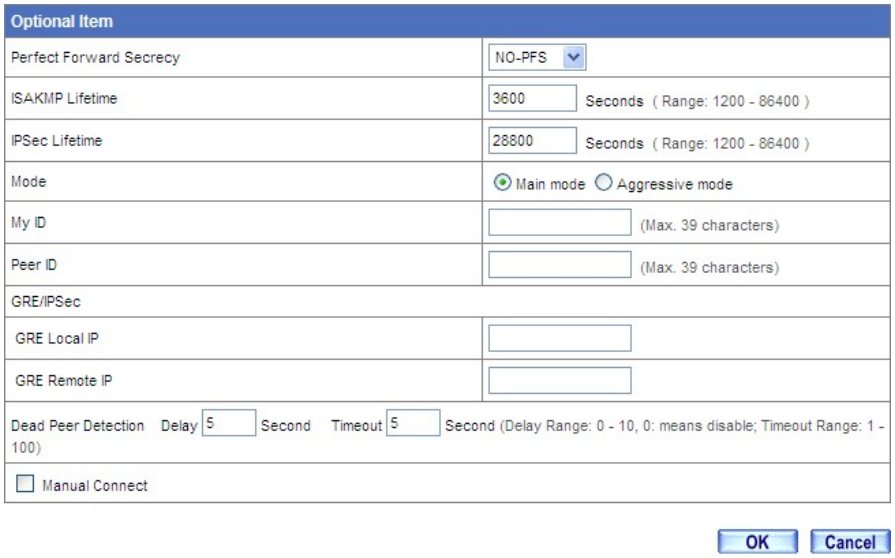


Figure 8.3

Perfect Forward Secrecy:	Select PFS for encryption
ISAKMP Lifetime:	Specify the security association lifetime
IPSec Lifetime:	Specify the IPsec lifetime
Mode:	Select whether to use main or aggressive mode to negotiate SA
My ID:	Identifying name for the local system
Peer ID:	Identifying name for the remote peer
GRE/IPSec:	Enter the **local** and **remote IP** addresses for generic routing encapsulation (GRE)
Manual Connect:	Select to enable manual VPN connection
Dead Peer Detection:	Specify the **delay** and **timeout** of packets sent to detect dead peer connection.

Step 4: Click **[OK]** to save the IPsec autokey.

Application Example 1

Objective – To allow the access of resources via IPsec VPN between two SifoWorks devices

Here we set up an IPsec VPN connection with company B with WAN IP address 211.22.22.22. Company A's SifoWorks WAN1 IP address is 61.11.11.11. LAN IP address is 192.168.10.X

Company A

Step 1: **Set up SifoWorks A IPsec VPN**

Step 1.1: On SifoWorks' configuration interface, select **"Policy Object > VPN > IPSec Autokey"**.

Step 1.2: Click **[New Entry]** to add a new IPsec connection. Set up the parameters according to the following:

Name: VPN_A

WAN Interface: WAN1

To Remote: Select Remote Gateway or Client -- Fixed IP and enter 211.22.22.22 as the IP address (SifoWorks B's WAN1 address)

Authentication Method: Preshare

Preshared Key: 1234567

Encapsulation: Select **ISAKMP algorithm**

ENC Algorithm: 3DES

AUTH Algorithm: MD5

Group: Group 1

IPSec algorithm: Select **Data Encryption + Authentication**

ENC Algorithm: 3DES

Auth Algorithm: MD5

Perfect Forward Secrecy: Group 1

ISAKMP Lifetime: 3600

IPSec Lifetime: 28800

Mode: Main mode

Step 1.3: Click **[OK]** to save the new IPsec configuration.

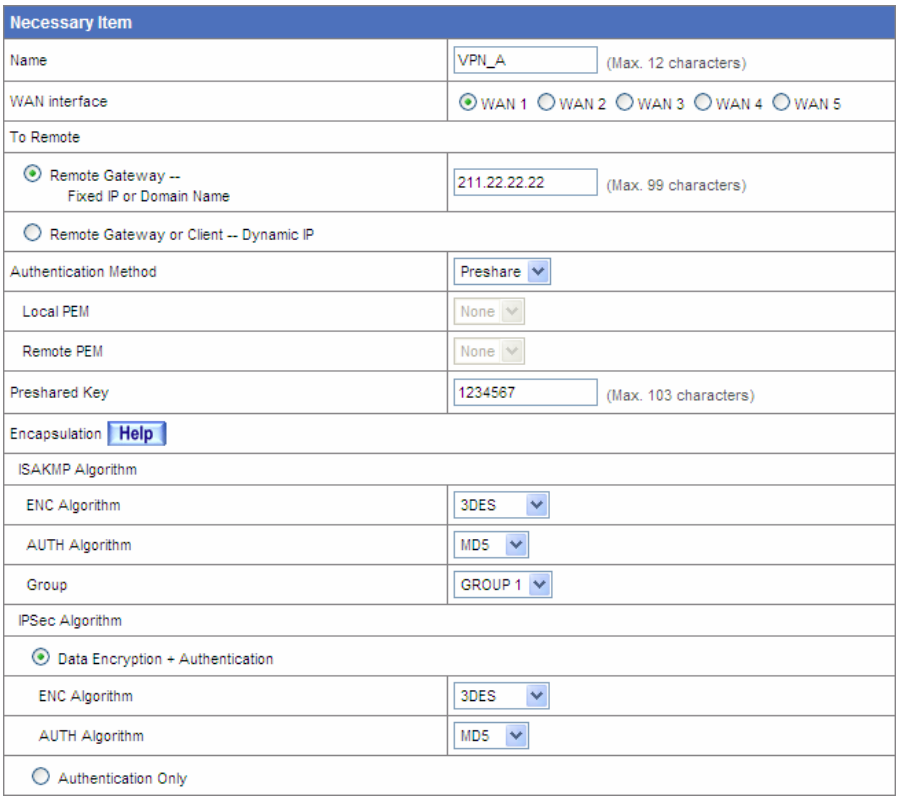


Figure 8.4

Step 2: **Add VPN Trunk**

Step 2.1: Select **"Policy Objects > VPN > Trunk"**

Step 2.2: Click **[New Entry]** to add a new VPN trunk with the following configuration:

Name: A_to_B_Trunk

From Local: LAN

From Local Subnet / Mask: 192.168.10.0/255.255.255.0

To Remote Subnet / Mask: 192.168.85.0/255.255.255.0

Step 2.3: Select the IPsec autokey, VPN_A, added in step 1 from the **<--- Available Tunnel --->** list and click **[Add>>]** to add the tunnel to this trunk.

Step 2.4: Select **show remote network neighborhood**

Step 2.5: Click **[OK]** to add the new trunk.

Step 3: **Add a new outgoing policy**

Step 3.1: Select **"Policy > Outgoing"**.

Step 3.2: Click **[New Entry]** to add a new outgoing policy with the following configurations:

Source Address: Inside_Any

Destination Address: Outside_Any

Service: ANY

VPN Trunk: A_to_B_Trunk

Action, WAN Port: Permit All

Step 3.3: Click **[OK]** to save the setting.

Step 4: **Add a new incoming policy**

Step 4.1: Select **"Policy > Incoming"**.

Step 4.2: Click **[New Entry]** to add a new incoming policy with the following configurations:

Source Address: Outside_Any

Destination Address: Inside_Any

Service: ANY

VPN Trunk: A_to_B_Trunk

Action, WAN Port: Permit

Step 4.3: Click **[OK]** to save the setting.

Company B

Step 5: **Add Multiple Subnets**

Step 5.1: From the left menu, select **"System > Configure > Multiple Subnet"**.

Step 5.2: Click **[New Entry]** to add a new multiple subnet. Set up the parameters according to the following:

Alias IP of Interface: 192.168.85.1

Netmask: 255.255.255.0

WAN1: 211.22.22.22

Forwarding Mode: NAT

Step 6: **Set up SifoWorks B IPsec VPN**

Step 6.1: On SifoWorks' configuration interface, select **"Policy Object > VPN > IPSec Autokey"**.

Step 6.2: Click **[New Entry]** to add a new IPsec connection. Set up the parameters according to the following:

Name: VPN_B

WAN Interface: WAN1

To Remote: Select Remote Gateway or Client -- Fixed IP and enter 61.11.11.11 as the IP address (SifoWorks A's WAN1 address)

Authentication Method: Preshare

Preshared Key: 1234567. Note that the preshared key must be the same as that configured in SifoWorks A above.

Encapsulation: Select **ISAKMP algorithm**

ENC Algorithm: 3DES

AUTH Algorithm: MD5

Group: Group 1

IPSec algorithm: Select **Data Encryption + Authentication**

ENC Algorithm: 3DES

Auth Algorithm: MD5

Perfect Forward Secrecy: Group 1

ISAKMP Lifetime: 3600

IPSec Lifetime: 28800

Mode: Main mode

Step 6.3: Click **[OK]** to save the new IPsec configuration.

Step 7: **Add VPN Trunk**

Step 7.1: Select **"Policy Objects > VPN > Trunk"**

Step 7.2: Click **[New Entry]** to add a new VPN trunk with the following configuration:

Name: B_to_A_Trunk

From Local: LAN

From Local Subnet/Mask: 192.168.85.0/255.255.255.0

To Remote Subnet/Mask: 192.168.10.0/255.255.255.0

Step 7.3: Select the IPsec autokey, VPN_B, added in step 5 from the **<--- Available Tunnel --->** list and click **[Add>>]** to add the tunnel to this trunk.

Step 7.4: Select **show remote network neighborhood**.

Step 7.5: Click **[OK]** to add the new trunk.

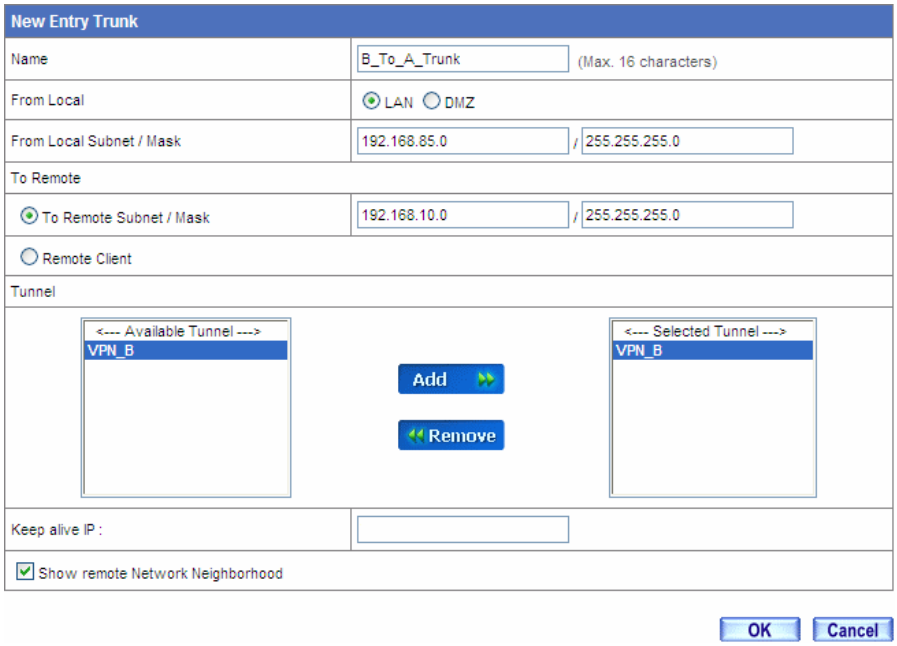


Figure 8.5

Step 8: **Add a new outgoing policy**

Step 8.1: Select **"Policy > Outgoing"**.

Step 8.2: Click **[New Entry]** to add a new outgoing policy with the following configurations:

Source Address: Inside_Any

Destination Address: Outside_Any

Service: ANY

VPN Trunk: B_to_A_Trunk

Action, WAN Port: Permit All

Step 8.3: Click **[OK]** to save the setting.

Step 9: **Add a new incoming policy**

Step 9.1: Select **"Policy > Incoming"**.

Step 9.2: Click **[New Entry]** to add a new incoming policy with the following configurations:

Source Address: Outside_Any

Destination Address: Inside_Any

Service: ANY

VPN Trunk: B_to_A_Trunk

Action, WAN Port: Permit

Step 9.3: Click **[OK]** to save the setting.

Results of Configuration

The network topology of the above configuration is shown in the figure below:

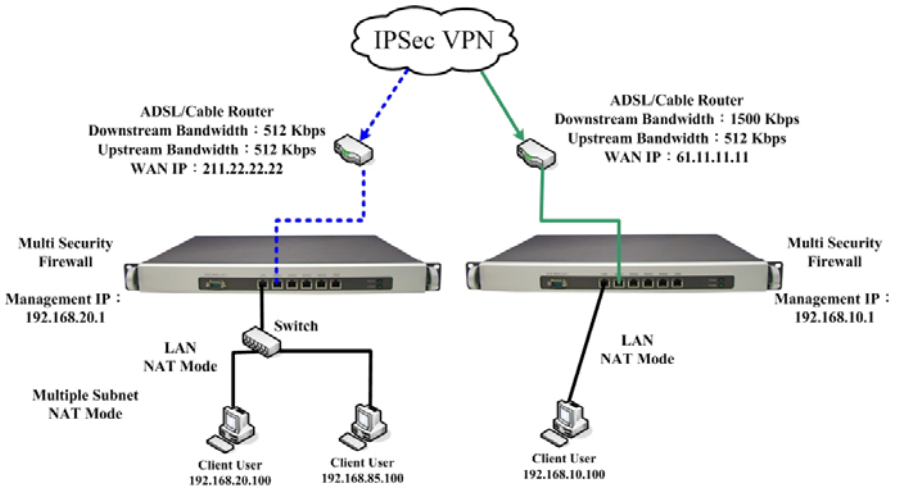


Figure 8.6

Application Example 2

Objective – To connect the SifoWorks device and a Windows 2000 device via IPsec VPN

Here we set up an IPsec VPN connection with company B's Windows 2000 VPN-IPsec with IP address 211.22.22.22. Company A's SifoWorks WAN1 IP address is 61.11.11.11. LAN IP address is 192.168.10.X.

Company A

Step 1: **Set up SifoWorks A IPsec VPN**

Step 1.1: On SifoWorks' configuration interface, select **"Policy Object > VPN > IPSec Autokey"**.

Step 1.2: Click **[New Entry]** to add a new IPsec connection. Set up the parameters according to the following:

Name: VPN_A

WAN Interface: WAN1

To Remote: Select Remote Gateway or Client – Dynamic IP

Authentication Method: Preshare

Preshared Key: 1234567

Encapsulation: Select **ISAKMP algorithm**

ENC Algorithm: 3DES

AUTH Algorithm: MD5

Group: Group 2

IPSec algorithm: Select **Data Encryption + Authentication**

ENC Algorithm: 3DES

Auth Algorithm: MD5

Perfect Forward Secrecy: Group 1

ISAKMP Lifetime: 3600

IPSec Lifetime: 28800

Mode: Main mode

Step 1.3: Click **[OK]** to save the new IPsec configuration.

Step 2: **Add VPN Trunk**

Step 2.1: Select **"Policy Objects > VPN > Trunk"**

Step 2.2: Click **[New Entry]** to add a new VPN trunk as follows:

Name: A_to_B_Trunk

From Local: LAN

From Local Subnet / Mask: 192.168.10.0/255.255.255.0

To Remote: Remote client

Step 2.3: Select the IPsec autokey, VPN_A, added in step 1 from the **<--- Available Tunnel --->** list and click **[Add>>]** to add the tunnel to this trunk.

Step 2.4: Select **show remote network neighborhood**

Step 2.5: Click **[OK]** to add the new trunk.

Step 3: **Add a new outgoing policy**

Step 3.1: Select **"Policy > Outgoing"**.

Step 3.2: Click **[New Entry]** to add a new outgoing policy as follows:

Source Address: Inside_Any

Destination Address: Outside_Any

Service: ANY

VPN Trunk: A_to_B_Trunk

Action, WAN Port: Permit All

Step 3.3: Click **[OK]** to save the setting.

Step 4: **Add a new incoming policy**

Step 4.1: Select **"Policy > Incoming"**.

Step 4.2: Click **[New Entry]** to add a new incoming policy with the following configurations:

Source Address: Outside_Any

Destination Address: Inside_Any

Service: ANY

VPN Trunk: A_to_B_Trunk

Action, WAN Port: Permit

Step 4.3: Click **[OK]** to save the setting.

Company B

Step 5: **Set up the Windows 2000 VPN-IPsec**

Set up the Windows 2000 IPsec VPN accordingly. Note that destination address is 192.168.10.0 with netmask 255.255.255.0. Preshared key and encapsulation group must be identical to that configured for company A above.

Please refer to the manual for Windows 2000 IPsec VPN for full configuration details.

Results of Configuration

The network topology of the above configuration is shown in the figure below:

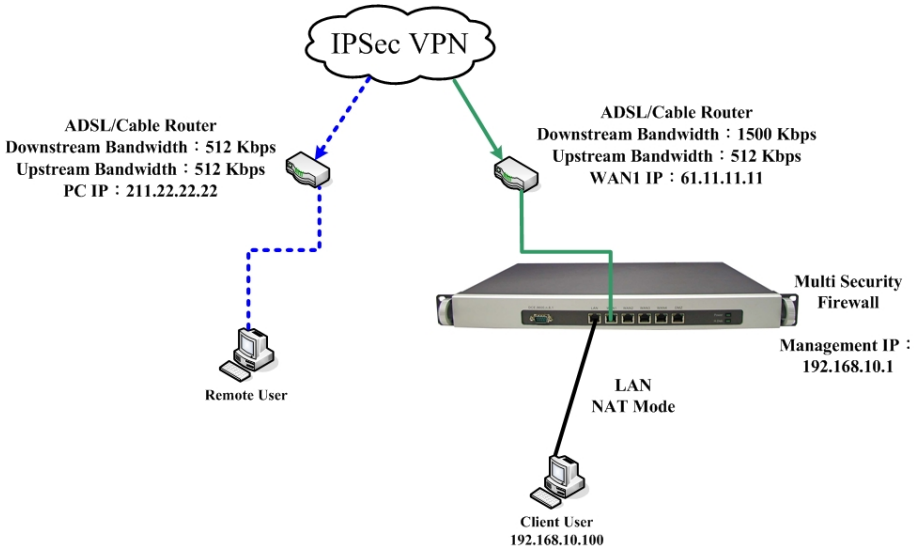


Figure 8.7

Application Example 3

Objective – To allow the access of resources via IPsec VPN between two SifoWorks devices in aggressive mode

Here we set up a IPsec VPN connection to download shared documents from company B with WAN IP address 211.22.22.22 and LAN IP address 192.168.20.X. Company A's SifoWorks WAN1 IP address is 61.11.11.11. LAN IP address is 192.168.10.X.

Company A

Step 1: **Set up SifoWorks A IPsec VPN**

Step 1.1: On SifoWorks' configuration interface, select **"Policy Object > VPN > IPSec Autokey"**.

Step 1.2: Click **[New Entry]** to add a new IPsec connection. Set up the parameters according to the following:

Name: VPN_A

WAN Interface: WAN1

To Remote: Select Remote Gateway or Client -- Fixed IP and enter 211.22.22.22 as the IP address (SifoWorks B's WAN1 address)

Authentication Method: Preshare

Preshared Key: 1234567

Encapsulation: Select **ISAKMP algorithm**

- **ENC Algorithm:** 3DES
- **AUTH Algorithm:** SHA1
- **Group:** Group 2

IPSec algorithm: Select **Data Encryption + Authentication**

- **ENC Algorithm:** 3DES
- **Auth Algorithm:** MD5

Perfect Forward Secrecy: Group 1

ISAKMP Lifetime: 3600

IPSec Lifetime: 28800

Mode: Aggressive mode

Note: *If you wish to configure My ID/Peer ID fields via IP address, you must use a different IP address from the real WAN/LAN IP addresses. To enter a string of characters, please add the character "@" before the string. For example, "@123a".*

Step 1.3: Click **[OK]** to save the new IPsec configuration.

Step 2: **Add VPN Trunk**

Step 2.1: Select **"Policy Objects > VPN > Trunk"**

Step 2.2: Click **[New Entry]** to add a new VPN trunk with the following configuration:

Name: A_to_B_Trunk

From Local: LAN

From Local Subnet/Mask: 192.168.10.0/255.255.255.0

To Remote Subnet/Mask: 192.168.20.0/255.255.255.0

Step 2.3: Select the IPsec autokey, VPN_A, added in step 1 from the **<--- Available Tunnel --->** list and click **[Add>>]** to add the tunnel to this trunk.

Step 2.4: Select **show remote network neighborhood**

Step 2.5: Click **[OK]** to add the new trunk.

Step 3: **Add a new outgoing policy**

Step 3.1: Select **"Policy > Outgoing"**.

Step 3.2: Click **[New Entry]** to add a new outgoing policy with the following configurations:

Source Address: Inside_Any

Destination Address: Outside_Any

Service: ANY

VPN Trunk: A_to_B_Trunk

Action, WAN Port: Permit All

Step 3.3: Click **[OK]** to save the setting.

Step 4: **Add a new incoming policy**

Step 4.1: Select **"Policy > Incoming"**.

Step 4.2: Click **[New Entry]** to add a new incoming policy with the following configurations:

Source Address: Outside_Any

Destination Address: Inside_Any

Service: ANY

VPN Trunk: A_to_B_Trunk

Action, WAN Port: Permit

Step 4.3: Click **[OK]** to save the setting.

Company B

Step 5: **Set up SifoWorks B IPsec VPN**

Step 5.1: On SifoWorks' configuration interface, select **"Policy Object > VPN > IPSec Autokey"**.

Step 5.2: Click **[New Entry]** to add a new IPsec connection. Set up the parameters according to the following:

Name: VPN_B

WAN Interface: WAN1

To Remote: Select Remote Gateway or Client -- Fixed IP and enter 61.11.11.11 as the IP address (SifoWorks A's WAN1 address)

Authentication Method: Preshare

Preshared Key: 1234567. Note that the preshared key must be the same as that configured in SifoWorks A above.

Encapsulation: Select **ISAKMP algorithm**

ENC Algorithm: 3DES

AUTH Algorithm: MD5

Group: Group 2

IPSec algorithm: Select **Data Encryption + Authentication**

ENC Algorithm: 3DES

Auth Algorithm: MD5

Perfect Forward Secrecy: Group 1

ISAKMP Lifetime: 3600

IPSec Lifetime: 28800

Mode: Aggressive mode

Step 5.3: Click **[OK]** to save the new IPsec configuration.

Step 6: **Add VPN Trunk**

Step 6.1: Select **"Policy Objects > VPN > Trunk"**

Step 6.2: Click **[New Entry]** to add a new VPN trunk as follows:

Name: B_to_A_Trunk

From Local: LAN

From Local Subnet/Mask: 192.168.20.0/255.255.255.0

To Remote Subnet/Mask: 192.168.10.0/255.255.255.0

Step 6.3: Select the IPsec autokey, VPN_B, added in step 5 from the **<--- Available Tunnel --->** list and click **[Add>>]** to add the tunnel to this trunk.

Step 6.4: Select **show remote network neighborhood**

Step 6.5: Click **[OK]** to add the new trunk.

Step 7: **Add a new outgoing policy**

Step 7.1: Select **"Policy > Outgoing"**.

Step 7.2: Click **[New Entry]** to add a new outgoing policy with the following configurations:

Source Address: Inside_Any

Destination Address: Outside_Any

Service: ANY

VPN Trunk: B_to_A_Trunk

Action, WAN Port: Permit All

Step 7.3: Click **[OK]** to save the setting.

Step 8: **Add a new incoming policy**

Step 8.1: Select **"Policy > Incoming"**.

Step 8.2: Click **[New Entry]** to add a new incoming policy with the following configurations:

Source Address: Outside_Any

Destination Address: Inside_Any

Service: ANY

VPN Trunk: B_to_A_Trunk

Action, WAN Port: Permit

Step 8.3: Click **[OK]** to save the setting.

Results of Configuration

The network topology of the above configuration is shown in the figure below:

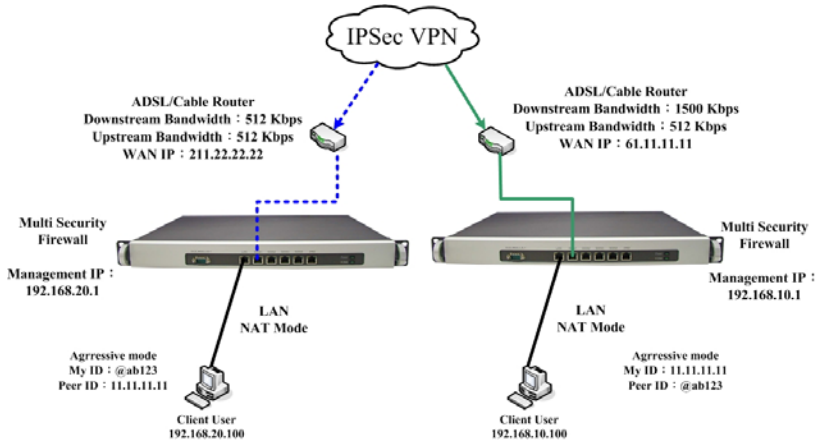


Figure 8.8

8.4 CA Certificates

> ***Note:*** *This function is not available for SifoWorks U100, U200, U210 and U310 devices.*

Here you can import the root CA that can be used during authentication of the peer device in a VPN connection.

Step 1: Select **"Policy Object > VPN > CA Certificates"** to view a list of root CAs already imported in the system. You can remove a CA from the list by clicking the **[Remove]** button in the **configure** column.

Step 2: From the top of the list, click **[Import]** to import a root CA.

Step 3: In the next screen, click **[Browse…]** and select the file to import.

Step 4: Click **[OK]** to begin import the file.

8.5 Local Certificates

> ***Note:*** *This function is not available for SifoWorks U100, U200, U210 and U310 devices.*

Select **"Policy Object > VPN > Local Certificates"** to view a list of local CAs already imported in the system. You can remove a CA from the list by clicking the **[Remove]** button in the **configure** column.

There are two ways to add a new local CA into the system.

Importing a Local CA

Step 1: From the top of the list, click **[Import]** to import a local CA.

Step 2: In the next screen, click **[Browse…]** and select the file to import.

Step 3: Click **[OK]** to begin import the file.

Generating a new Local CA

Step 1: Click **[New Entry]**.

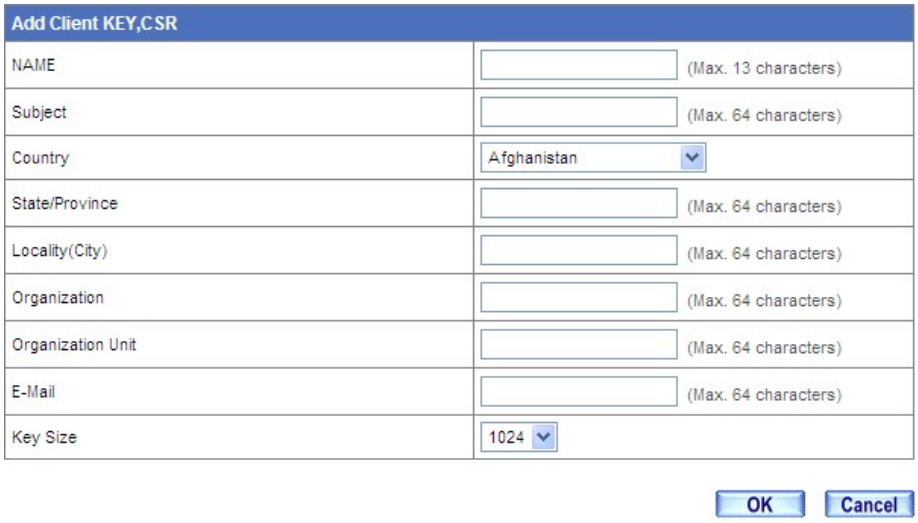


Figure 8.9

Step 2: Configure the parameters.

Name:	Name of the local CA
Subject:	Name of the connection using this CA
Country:	Country where this device is located
State/Province:	State or province this device is located in
Locality (City):	The specific city this device is located in
Organization:	Company Name
Organization Unit:	Department name
E-Mail:	Email address
Key Size:	Length of security key

Step 3: Click **[OK]** to add the CSR.

Step 4: Click **[Download]** from the **configure** column corresponding to the newly added CSR. Download the file into a .pem file.

Step 5: Click **[Import]** and import the downloaded .pem file.

8.6 PPTP Server

Step 1: Select **"Policy Object > VPN > PPTP Server"** to configure SifoWorks as a PPTP server.

Step 2: From the top of the list, click **[Modify]** to edit the basic PPTP server settings. The configuration interface is shown in the figure below:

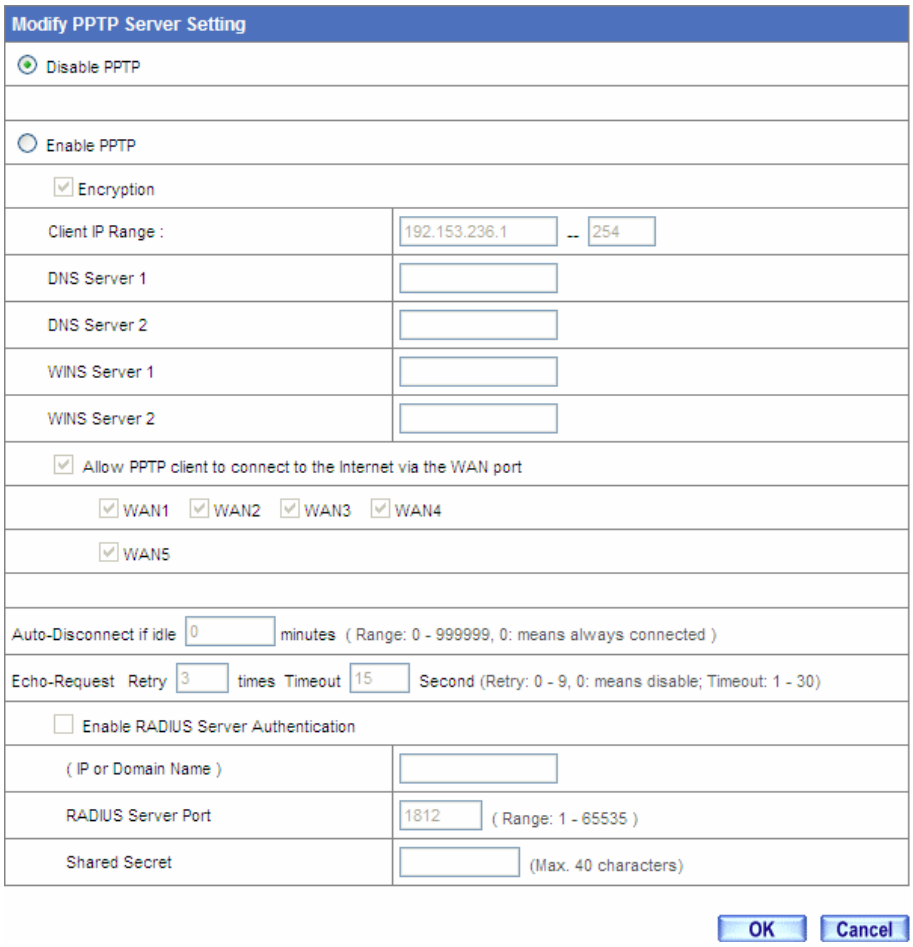


Figure 8.10

Step 3: Select to **Enable PPTP** server.

Step 4: Select whether to use **Encryption** for this server.

Step 5: Enter the **Client IP Range** and the IP addresses of the primary and secondary **DNS** and **WINS** servers.

Step 6: Check to **Allow PPTP clients to connect to the Internet**.

Step 7: Select the WAN interface through which the PPTP clients connect to.

Step 8: Specify the **idle** time after which the user is automatically disconnected.

Step 9: Also specify the number of **Retry** and **Timeout** for each echo-request packet sent.

Note: SifoWorks U100 does not support the use of RADIUS server authentication for PPTP servers. Please skip steps 10 to 12 if you are using a SifoWorks U100 device.

Step 10: Select to **Enable RADIUS Server Authentication** for this PPTP server.

Step 11: Specify the **IP** address or **Domain Name** and **Port** of the RADIUS server.

Step 12: Enter the **Shared Secret**.

Step 13: Click **[OK]** to save the PPTP server configuration.

Tip: *You can also enable or disable the **PPTP server** from the top of the list by clicking on the **[enable]** or **[disable]** link.*

Step 14: Return to the PPTP server list (**"Policy Object > VPN > PPTP Server"**) to view the VPN clients that connect to this PPTP server. You can modify or delete any PPTP connection from the list by clicking the appropriate buttons in the **Configure** column.

Step 15: Click **[New Entry]** to add a new client that can connect to this PPTP server.

Step 16: Enter the remote client's **User Name** and **Password**.

Step 17: Select whether to assign the client an IP address from an **IP Range** or specify a **Fixed IP** for the client.

Step 18: Select whether to enable the client can be manually disconnected.

Step 19: Click **[OK]** to add the new user.

8.7 PPTP Client

Select **"Policy Object > VPN > PPTP Client"**. Here, you can set up the PPTP clients that connect to a remote PPTP server. From the list displayed, you can modify or remove a PPTP client by clicking on the appropriate buttons in the **Configure** column.

The **Uptime** column displays the connection time between the PPTP client and the server. Click **[Connect]** to connect the client to the PPTP server. Click **[Disconnect]** to disconnect from the server.

Step 1: Click **[New Entry]** to add a new PPTP client.

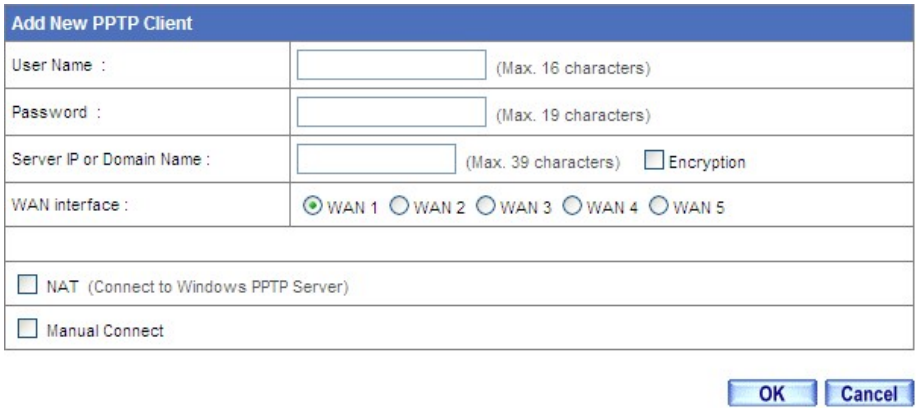


Figure 8.11

User Name:	Client's user name
Password:	Client's password
Server IP or Domain Name:	IP address or domain name of the PPTP server to connect to. Select whether to encrypt the address when establishing connection with the server
WAN Interface:	Select which WAN interface the client uses to communicate with the remote server
NAT:	Select to enable NAT
Manual Connect:	Select to enable manual connection of the client to the remote server

Step 2: Click **[OK]** to save the new PPTP client.

Application Example 1

Objective – To set the PPTP outbound load balance via VPN between two SifoWorks devices

In this example, we want to set up a PPTP VPN connection between two SifoWorks devices. SifoWorks_A acts as the PPTP server with WAN IP 61.11.11.11 and LAN IP 192.168.10.X. SifoWorks_B acts as the PPTP client with WAN IP 211.22.22.22 and LAN IP 192.168.20.X.

SifoWorks_A

Step 1: **Set up PPTP Server**

Step 1.1: Select **"Policy Object > VPN > PPTP Server"**.

Step 1.2: Click **[Modify]** to modify the server settings.

Step 1.3: Select to **enable PPTP**.

Step 1.4: Select **encryption** and enter the **client IP range** as 192.44.75.1-254.

Step 1.5: Click **[OK]** to save the configuration.

Step 2: **Add New PPTP Server User**

Back in the PPTP server list, you now have to add a user that can connect to the configured server.

Step 2.1: Click **[New Entry]**.

Step 2.2: Enter "PPTPB_Connection" in **Username** and "123456" in **password**.

Step 2.3: Select to assign client IP by "IP Range".

Step 2.4: Click **[OK]** to add the new PPTP server user.

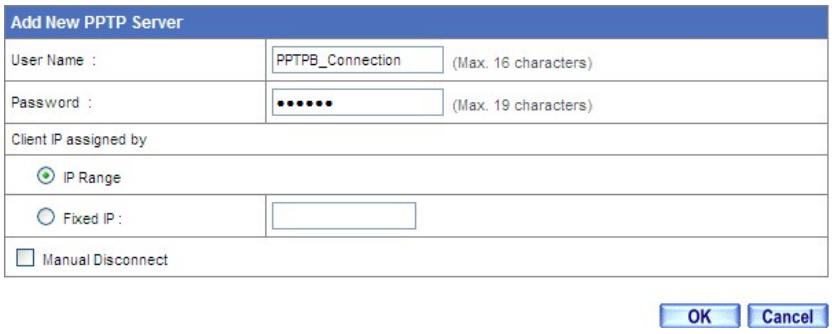


Figure 8.12

Step 3: **Add VPN Trunk**

Step 3.1: Select **"Policy Objects > VPN > Trunk"**

Step 3.2: Click **[New Entry]** to add a new VPN trunk with the following configuration:

Name: PPTP_Trunk

From Local: LAN

From Local Subnet / Mask: 192.168.10.0/255.255.255.0

To Remote Subnet / Mask: 192.168.20.0/255.255.255.0

Step 3.3: Select PPTPB_Connection added in step 2 from the **<--- Available Tunnel --->** list and click **[Add>>]** to add the tunnel to this trunk.

Step 3.4: Select **show remote network neighborhood**

Step 3.5: Click **[OK]** to add the new trunk.

Step 4: **Add a new outgoing policy**

Step 4.1: Select **"Policy > Outgoing"**.

Step 4.2: Click **[New Entry]** to add a new outgoing policy with the following configurations:

Source Address: Inside_Any

Destination Address: Outside_Any

Service: ANY

VPN Trunk: PPTP_Trunk

Action, WAN Port: Permit All

Step 4.3: Click **[OK]** to save the setting.

Step 5: **Add a new incoming policy**

Step 5.1: Select **"Policy > Incoming"**.

Step 5.2: Click **[New Entry]** to add a new incoming policy with the following configurations:

Source Address: Outside_Any

Destination Address: Inside_Any

Service: ANY

VPN Trunk: PPTP_Trunk

Action, WAN Port: Permit

Step 5.3: Click **[OK]** to save the setting.

SifoWorks_B

Step 6: **Add New PPTP Client**

Step 6.1: Select **"Policy Object > VPN > PPTP Client"**.

Step 6.2: Click **[New Entry]**.

Step 6.3: Enter "PPTPB_Connection" in **username** and "123456" in **password**.

Step 6.4: Enter the **server IP** address as 61.11.11.11 (SifoWorks_A WAN IP).

Step 6.5: Select **encryption**.

Step 6.6: For **WAN interface**, select "WAN1".

Step 6.7: Click **[OK]** to save the new PPTP client.

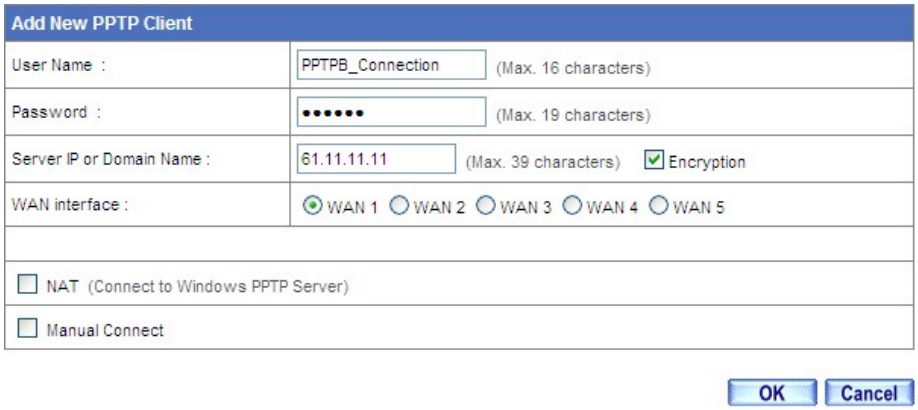


Figure 8.13

Step 7: **Add VPN Trunk**

Step 7.1: Select **"Policy Objects > VPN > Trunk"**

Step 7.2: Click **[New Entry]** to add a new VPN trunk with the following configuration:

Name: PPTP_Trunk

From Local: LAN

From Local Subnet / Mask: 192.168.20.0/255.255.255.0

To Remote Subnet / Mask: 192.168.10.0/255.255.255.0

Step 7.3: Select PPTPB_Connection added in step 6 from the **<--- Available Tunnel --->** list and click **[Add>>]** to add the tunnel to this trunk.

Step 7.4: Select **show remote network neighborhood**

Step 7.5: Click **[OK]** to add the new trunk.

Step 8: **Add a new outgoing policy**

Step 8.1: Select **"Policy > Outgoing"**.

Step 8.2: Click **[New Entry]** to add a new outgoing policy with the following configurations:

Source Address: Inside_Any

Destination Address: Outside_Any

Service: ANY

VPN Trunk: PPTP_Trunk

Action, WAN Port: Permit All

Step 8.3: Click **[OK]** to save the setting.

Step 9: **Add a new incoming policy**

Step 9.1: Select **"Policy > Incoming"**.

Step 9.2: Click **[New Entry]** to add a new incoming policy with the following configurations:

Source Address: Outside_Any

Destination Address: Inside_Any

Service: ANY

VPN Trunk: PPTP_Trunk

Action, WAN Port: Permit

Step 9.3: Click **[OK]** to save the setting.

Results of Configuration

SifoWorks_B can now establish a PPTP VPN connection with the server at SifoWorks_A. The topology of the network is shown in the figure below:

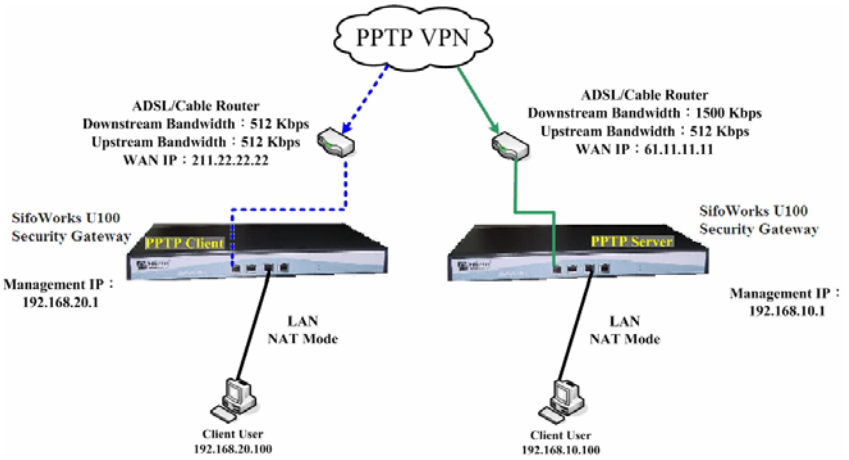


Figure 8.14

Application Example 2

Objective – To set up a PPTP VPN connection between a SifoWorks device and Windows 2000

In this example, we want to set up a PPTP VPN connection between 2 companies. Company A deploys SifoWorks with WAN IP 61.11.11.11 and LAN IP 192.168.10.X. Company B deploys Windows 2000 VPN-PPTP with WAN IP 211.22.22.22.

Company A (SifoWorks)

Step 1: **Set up PPTP Server**

Step 1.1: Select **"Policy Object > VPN > PPTP Server"**.

Step 1.2: Click **[Modify]** to modify the server settings.

Step 1.3: Select to **enable PPTP**.

Step 1.4: Select **encryption** and enter the **client IP range** as 192.44.75.1-254.

Step 1.5: Click **[OK]** to save the configuration.

Step 2: **Add New PPTP Server User**

Back in the PPTP server list, you now have to add a user that can connect to the configured server.

Step 2.1: Click **[New Entry]**.

Step 2.2: Enter "PPTPB_Connection" in **Username** and "123456" in **password**.

Step 2.3: Select to assign client IP by "IP Range".

Step 2.4: Click **[OK]** to add the new PPTP server user.

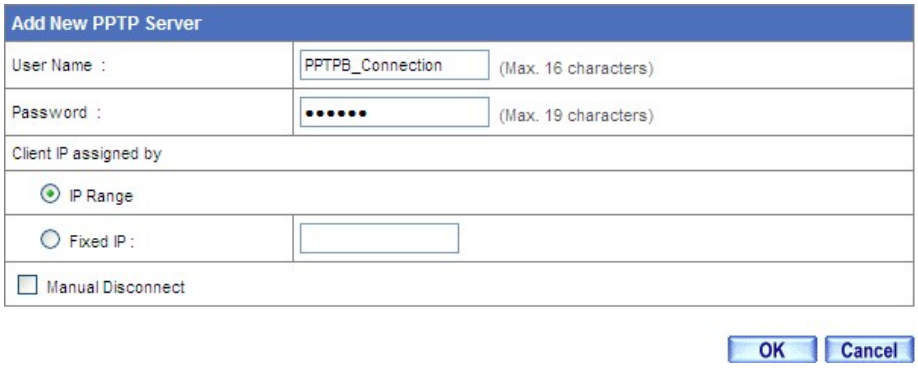


Figure 8.15

Step 3: **Add VPN Trunk**

Step 3.1: Select **"Policy Objects > VPN > Trunk"**

Step 3.2: Click **[New Entry]** to add a new VPN trunk with the following configuration:

Name: PPTP_Trunk

From Local: LAN

From Local Subnet/Mask: 192.168.10.0/255.255.255.0

To Remote: Remote Client

Step 3.3: Select PPTPB_Connection added in step 2 from the **<--- Available Tunnel --->** list and click **[Add>>]** to add the tunnel to this trunk.

Step 3.4: Select **show remote network neighborhood**

Step 3.5: Click **[OK]** to add the new trunk.

Step 4: **Add a new outgoing policy**

Step 4.1: Select **"Policy > Outgoing"**.

Step 4.2: Click **[New Entry]** to add a new outgoing policy with the following configurations:

Source Address: Inside_Any

Destination Address: Outside_Any

Service: ANY

VPN Trunk: PPTP_Trunk

Action, WAN Port: Permit All

Step 4.3: Click **[OK]** to save the setting.

Step 5: **Add a new incoming policy**

Step 5.1: Select **"Policy > Incoming"**.

Step 5.2: Click **[New Entry]** to add a new incoming policy with the following configurations:

Source Address: Outside_Any

Destination Address: Inside_Any

Service: ANY

VPN Trunk: PPTP_Trunk

Action, WAN Port: Permit

Step 5.3: Click **[OK]** to save the setting.

Company B (Windows 2000 VPN-PPTP)

Step 6: **Add a new VPN connection**

Step 6.1: In Windows, access the Network and Dial-up connection folder and click the **Make New Connection** icon.

Step 6.2: Follow the on-screen instructions to configure the new connection accordingly. Take note of the following parameters:

Network Connection Type: Connect to a private network through the Internet

VPN Server Selection: 61.11.11.11 (Company A's WAN IP)

Step 6.3: In the *Connect Virtual Private Connection* dialog box displayed, enter the following:

User name: PPTPB_Connection

Password: 123456

Step 6.4: Select to **save password**.

Step 6.5: Click **[Connect]** to connect to the company A's VPN server.

Tip: *Please refer to your Windows 2000 manual for more configuration details of the Windows VPN-PPTP.*

Results of Configuration

A *Connection Complete* dialog box will be displayed by Windows when company B successfully connects to company A's PPTP server. A PPTP VPN connection is now established between the two companies. The topology of the network is shown in the figure below:

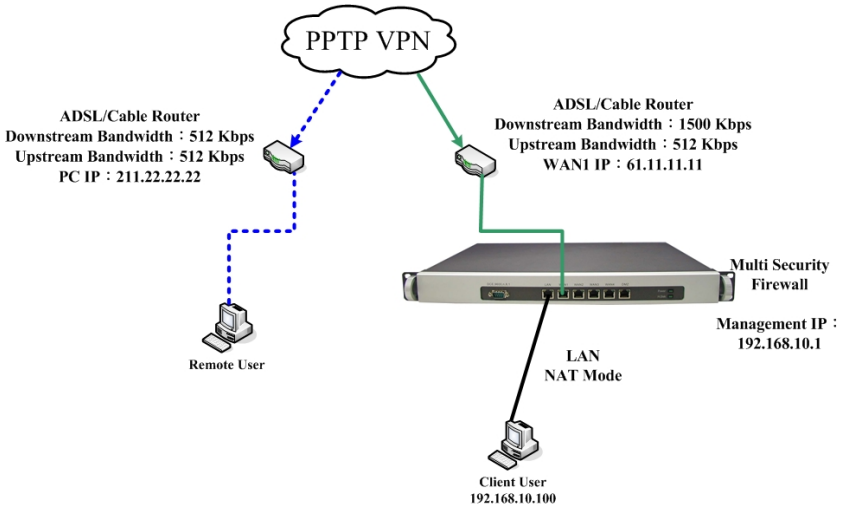


Figure 8.16

8.8 Trunk

Through the use of IPsec VPN trunks, you can group VPN tunnels into VPN trunks and define which VPN traffic should be send by which trunk. VPN trunks can also be used to forward traffic from one VPN trunk to another, allowing the system to balance the VPN load and provide reliability of VPN tunnel services.

Select **"Policy Object > VPN > Trunk"** to view the list of VPN trunks. You can modify or enable/disable any VPN trunk object from the list by clicking on the appropriate buttons in the **Configure** column. Note that a VPN trunk that is currently in use cannot be modified.

Step 1: Click **[New Entry]** to add a new VPN trunk.

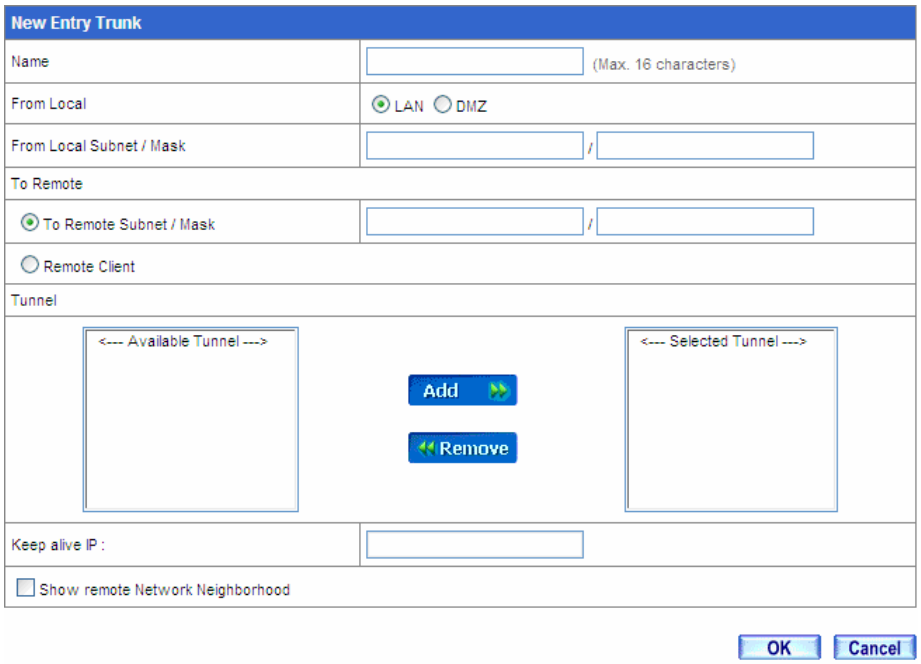


Figure 8.17

Step 2: Enter the **Name** of the VPN trunk.

Step 3: Select the **Local** interface (LAN or DMZ) and enter the **Local Subnet** address and netmask.

Step 4: You can either enter a **Remote Subnet** and network **Mask** or a **Remote Client** as the trunk's destination.

Step 5: From the **<--- Available Tunnel --->** list, select the VPN tunnels and click **[Add>>]** to add the tunnels as members of this trunk.

Step 6: Click the tunnels from the **<--- Selected Tunnel --->** and click **[<<Remove]** to delete it from the trunk.

Step 7: Enter the **Keep alive IP** address. This address is used to check the status of the tunnel and should be an existing server's IP address in the remote LAN.

Step 8: Select whether to **Show remote Network Neighborhood**.

Step 9: Click **[OK]** to save the new VPN trunk.

Note: *You must set up policies using the added VPN trunks before they take effect.*

Chapter

9

Policy and Objects - More Application Examples

9.1 Application Example 1

Objective – To restrict access to specific WAN IP; access to any other IP addresses require user authentication

In this example, we set up the system such that LAN users cannot access the WAN IP "165.13.32.21/32" and "203.123.24.3/32". LAN users "User1", "User2" and "User3" must be authenticated before they can access all other addresses on the Internet.

Step 1: **Set up WAN address and address group object**

Step 1.1: Select **"Policy Object > Address > WAN"** to add new WAN address objects.

Step 1.2: Add two WAN address objects with the above **IP address** and **netmask**.

Step 1.3: Select **"Policy Object > WAN Group"** to add a new WAN address group object "Restrict_WAN_Group".

Step 1.4: Select the two WAN address objects added previously and add them into the group.

Step 2: **Set up authentication user**

Step 2.1: Select **"Policy Object > Authentication > User"** and add the 3 authentication users, User1, User2 and User3.

Step 2.2: Select **"Policy Object > Authentication > User Group"** to add a new authentication user group with the name "Restrict_Group".

Step 2.3: Select the 3 authentication users added above as the members of this group.

*Step 2.*4: Select **"Policy Object > Authentication > Auth Setting"** to set up the system authentication server as appropriate.

Step 3: **Define the 1st outgoing policy – restrict WAN IP access**

Step 3.1: Select **"Policy > Outgoing"** and add a new outgoing policy. Configure the policy as follows:

Source Address: Inside_Any

Destination Address: Restrict_WAN_Group (the WAN address group object set up above)

Action: Deny All

Step 3.2: Click **[OK]** to save the new policy.

Step 4: **Define the 2nd outgoing policy – authentication**

Step 4.1: Select **"Policy > Outgoing"** and add a new outgoing policy. Configure the policy as follows:

Source Address: Inside_Any

Destination Address: Outside_Any

Action: Permit All

Authentication User: "Restrict_Group" (the authentication group object set up above)

Step 4.2: Click **[OK]** to add the new policy.

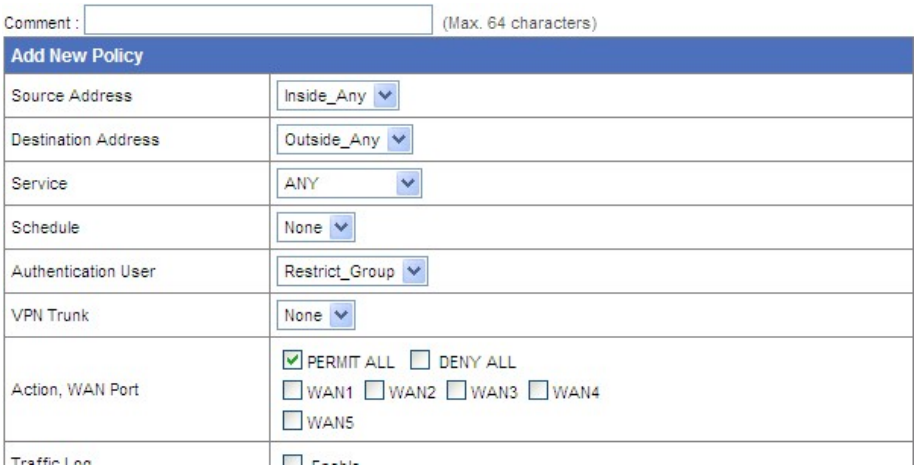


Figure 9.1

Results of Configuration

2 new policies will be added in the policy list. The system will check packets based on the priority in which the policy was added. Hence, each packet will first be checked if its destination address is either "165.13.32.21/32" or "203.123.24.3/32". The packet will be discarded if the address matches.

If not, the system will match the packet against the next policy in the list. If the packet comes from User1, User2 or User3, the 2nd policy will be matched successfully and the system will prompt the user for authentication before granting access.

9.2 Application Example 2

Objective - Set up a mail server in DMZ accessible by LAN and WAN users

In this example, we set up the system to allow both LAN and WAN users to a Mail Server located in DMZ. The address of the mail server is 60.12.11.11. Users must be able to both send and receive mail from the mail server.

Step 1: **Set up mail server address object**

Step 1.1: Select **"Policy Object > Address > DMZ"**.

Step 1.2: Add a new DMZ address object ("Mail_Server") with the mail server's IP address 60.12.11.11/32.

Step 2: **Set up service object**

Step 2.1: Select **"Policy Object > Service > Group"**.

Step 2.2: Add new service group object with the **name** "E-Mail".

Step 2.3: Select the pre-defined services "DNS", "POP3" and "SMTP" as the group members.

Step 3: **Set up policies for WAN users**

Step 3.1: Set up a policy to allow WAN users to send mail to the mail server.

Step 3.2: Select **"Policy > WAN to DMZ"** and add a new policy under this category with the following configuration:

Source Address: Outside_Any

Destination Address: Mail_Server

Service: E-Mail

Action: Permit

Step 3.3: Click **[OK]** to save the new policy.

Step 3.4: Next, set up a policy to allow WAN users to receive mail from the mail server. Select **"Policy > DMZ to WAN"** and add a new policy with the following configuration:

Source Address: Mail_Server

Destination Address: Outside_Any

Service: E-Mail

Action: Permit

Step 3.5: Click **[OK]** to save the new policy.

Step 4: **Set up Policies for LAN Users**

Step 4.1: Set up a policy to allow LAN users to send mail to the mail server. Select **"Policy > LAN to DMZ"**.

Step 4.2: Add a new policy with the following configuration:

Source Address: Inside_Any

Destination Address: Mail_Server

Service: E-Mail

Action: Permit

Step 4.3: Click **[OK]** to save the new policy.

Step 4.4: Next, set up a policy to allow LAN users to receive mail from the mail server. Select **"Policy > DMZ to LAN"**.

Step 4.5: Add a new policy with the following configuration:

Source Address: Mail_Server

Destination Address: Inside_Any

Service: E-Mail

Action: Permit

Step 4.6: Click **[OK]** to save the new policy.

Results of the Configuration

Both LAN and WAN users can now send and receive mail from the internal DMZ mail server.

9.3 Application Example 3

Objective – To allow WAN users to communicate with LAN users via VoIP (VoIP port number: TCP 1720, TCP 15328 - 15333, UDP 15328 – 15333)

Step 1: **Add LAN address and address group object**

Step 1.1 From the left menu, select "**Policy Object > Address > LAN**".

Step 1.2 Add an address object for each LAN VoIP user.

Total entry : 4 Assist add

Name	IP / Netmask	MAC Address	Configure
Inside_Any	0.0.0.0/0.0.0.0		In Use
VoIP_User1	192.168.10.20/255.255.255.255		Modify Remove
VoIP_User2	192.168.10.22/255.255.255.255		Modify Remove
VoIP_User3	192.168.10.24/255.255.255.255		Modify Remove

New Entry

Figure 9.2

Step 1.3 From the left menu, select "**Policy Object > Address > LAN Group**".

Step 1.4 Click **[New Entry]** to add a new LAN address group "VoIP_LAN" containing the previously added address objects.

Step 2: **Add a VoIP service**

Step 2.1: Select **"Policy Object > Service > Custom"**.

Step 2.2: Click **[New Entry]** to add a new service with the following configuration:

Name: VoIP_Svc

Protocol 1: Select TCP. **Server Port** 1720:1720

Protocol 2: Select TCP. **Server Port** 15328:15333

Protocol 3: Select UDP. **Server Port** 15328:15333

Step 2.3: Click **[OK]** to add the new object.

Step 3: **Set up the virtual server**

Step 3.1: Select **"Policy Object > Virtual Server > Server 2"**.

Step 3.2: Click **[Click here to configure]** to configure the virtual server real IP address according to your network topology.

Step 3.3: Click **[OK]** to save the setting

Step 4: **Add the LAN servers providing the web service**

Step 4.1: Click **[New Entry]** and configure the parameters as follows:

Service: VoIP_Svc

Server Operating Mode : Round-Robin

Server Virtual IP 1: 192.168.1.101

Server Virtual IP 2: 192.168.1.102

Server Virtual IP 3: 192.168.1.103

Server Virtual IP 4: 192.168.1.104

Step 4.2: Click **[OK]** to save the setting.

Step 5: **Add an incoming policy**

Step 5.1: Select **"Policy > Incoming"**

Step 5.2: Click **[New Entry]** to add a new incoming policy with the following configurations:

Source Address: Outside_Any

Destination Address: Virtual Server 2

Service: VoIP_Svc

Action: Permit All

Step 5.3: Click **[OK]** to save the setting.

Step 6: **Add an outgoing policy**

Step 6.1: Select **"Policy > Outgoing"**.

Step 6.2: Click **[New Entry]** to add a new outgoing policy with the following configurations:

Source Address: VoIP

Destination Address: Outside_Any

Service: VoIP_Svc

Action, WAN Port: Permit All

Step 6.3: Click **[OK]** to save the setting.

Results of the Configuration

External users can now communicate with the LAN users using the VoIP service through the virtual IP address.

9.4 Application Example 4

Objective – To set up load balancing between two SifoWorks devices connected via IPsec VPN using RSA-SIG authentication

> ***Note:*** *RSA-SIG authentication is not supported by SifoWorks U100.*

Here, SifoWorks A's WAN1 IP is 61.11.11.11, WAN2 IP is 61.22.22.22; LAN IP is 192.168.10.X.

SifoWorks B's WAN1 IP is 211.22.22.22, WAN2 IP is 211.33.33.33, LAN IP is 192.168.20.X.

SifoWorks A

Step 1: **Add the Local certificates**

Step 1.1: From the left menu, select "**Policy Object > VPN > Local Certificates**".

Step 1.2: Click **[New Entry]** and configure the parameters as follows:

Name: Site_A_1

Subject: VPN_1

Country: Japan

State/Province: Japan

Locality (City): Tokyo

Organization: ABC

Organization Unit: Support

E-Mail: support@abc.com

Key size: 2048

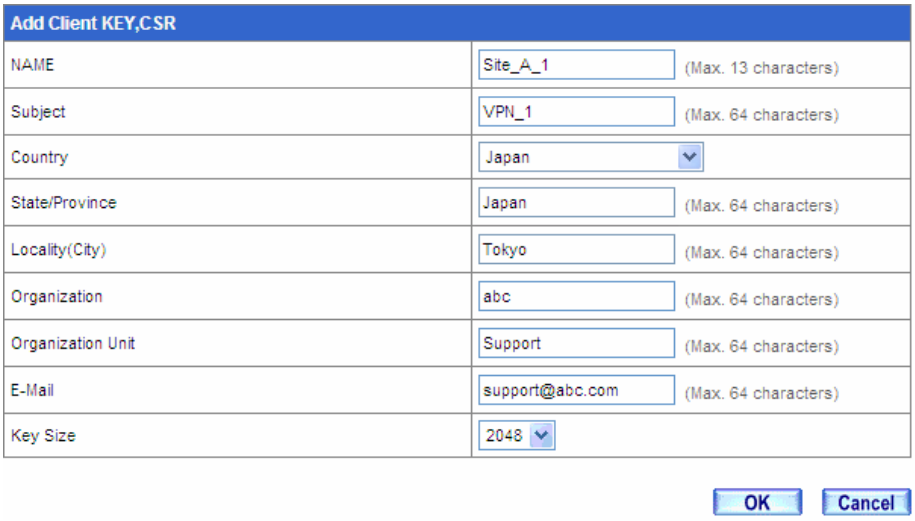


Figure 9.3

Step 1.3: Click **[OK]** to add the Client key.

Step 1.4: Click **[Download]** from the **configure** column corresponding to the previously added Client key.

Step 1.5: Save the file with the filename "Site_A_1.pem".

Step 1.6: Click **[Import]** and import the downloaded file into the system.

Step 1.7: Repeat steps 1.2 to 1.6 to import another Local certificate (Site_A_2).

Step 1.8: Click **[Import]** and import the 2 CA certificates of SifoWorks B (Site_B_1 and Site_B_2).

Step 2: **Import the CA Certificates**

Step 2.1: Select **"Policy Object > VPN > CA Certificates"**.

Step 2.2: Click **[Import]**.

Step 2.3: Click **[Browse…]** and select the CA certificate file from the CA server (for SifoWorks A) to be imported.

Step 2.4: Click **[OK]** to import the file.

Step 2.5: Repeat steps 2.2 to 2.4 to import SifoWorks B's CA certificate file.

Step 3: **Set up the IPsec Autokey for WAN1**

Step 3.1: Select **"Policy Object > VPN > IPSec Autokey"**.

Step 3.2: Click **[New Entry]** and configure the following parameters:

Name: VPN_A_1

WAN Interface: WAN1

To Remote Gateway – Fixed IP or domain name: 211.22.22.22 (SifoWorks B's WAN1 address)

Authentication Method: RSA-SIG

Local PEM: Site_A_1

Remote PEM: Site_B_1

Encapsulation: Select **ISAKMP algorithm**

ENC Algorithm: 3DES

AUTH Algorithm: MD5

Group: Group 1

IPSec algorithm: Select **Data Encryption + Authentication**

ENC Algorithm: 3DES

Auth Algorithm: MD5

Perfect Forward Secrecy: Group 1

ISAKMP Lifetime: 3600

IPSec Lifetime: 28800

Mode: Main mode

GRE / IPSec / GRE Local IP: 192.168.50.100

GRE Remote IP: 192.168.50.200

Step 3.3: Click **[OK]** to save the setting.

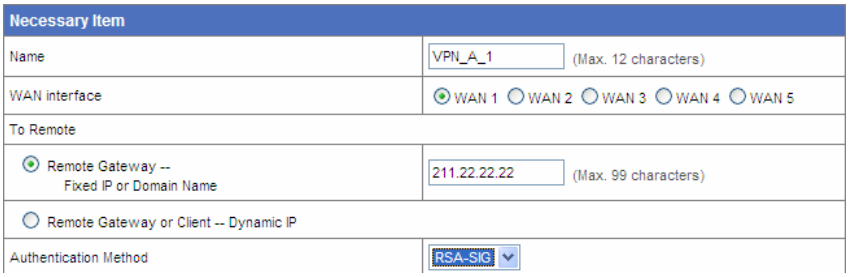


Figure 9.4

Step 4: **Set up the IPsec Autokey for WAN2**

Step 4.1: Click **[New Entry]** and configure the parameters as follows:

Name: VPN_A_2

WAN Interface: WAN2

To Remote Gateway – Fixed IP or domain name: 211.33.33.33 (SifoWorks B's WAN2 address)

Authentication Method: RSA-SIG

Local PEM: Site_A_2

Remote PEM: Site_B_2

Encapsulation: Select **ISAKMP algorithm**

ENC Algorithm: 3DES

AUTH Algorithm: MD5

Group: Group 1

IPSec algorithm: Select **Data Encryption + Authentication**

ENC Algorithm: 3DES

Auth Algorithm: MD5

Perfect Forward Secrecy: Group 1

ISAKMP Lifetime: 3600

IPSec Lifetime: 28800

Mode: Main mode

GRE / IPSec / GRE Local IP: 192.168.50.100

GRE Remote IP: 192.168.50.200

Step 4.2: Click **[OK]** to save the setting.

Step 5: **Add VPN Trunk**

Step 5.1: Select **"Policy Objects > VPN > Trunk"**

Step 5.2: Click **[New Entry]** to add a new VPN trunk with the following configuration:

Name: A_To_B_Trunk

From Local: LAN

From Local Subnet / Mask: 192.168.10.0/255.255.255.0

To Remote Subnet / Mask: 192.168.20.0/255.255.255.0

Step 5.3: Select VPN_A_1 and VPN_A_2 added in step 2 from the **<--- Available Tunnel --->** list and click **[Add>>]** to add the tunnel to this trunk.

Step 5.4: Select **show remote network neighborhood**

Step 5.5: Click **[OK]** to add the new trunk.

Step 6: **Add an incoming policy**

Step 6.1: Select **"Policy > Incoming"**

Step 6.2: Click **[New Entry]** to add a new incoming policy with the following configurations:

Source Address: Outside_Any

Destination Address: Inside_Any

VPN Trunk: A_To_B_Trunk

Action: Permit

Step 6.3: Click **[OK]** to save the setting.

Step 7: **Add an outgoing policy**

Step 7.1: Select **"Policy > Outgoing"**.

Step 7.2: Click **[New Entry]** to add a new outgoing policy with the following configurations:

Source Address: Inside_Any

Destination Address: Outside_Any

VPN Trunk: A_To_B_Trunk

Action, WAN Port: Permit All

Step 7.3: Click **[OK]** to save the setting.

Step 8: **SifoWorks B**

Follow steps 1 to 7 to configure SifoWorks B.

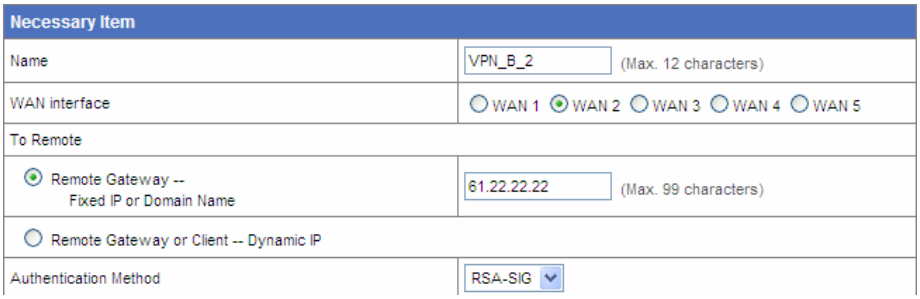


Figure 9.5

Results of the Configuration

SifoWorks A and SifoWorks B are now connected via an IPsec VPN with the traffic load balanced between the WAN1 and WAN2 ports of both devices. The network topology resulting from the above configurations is as follows:

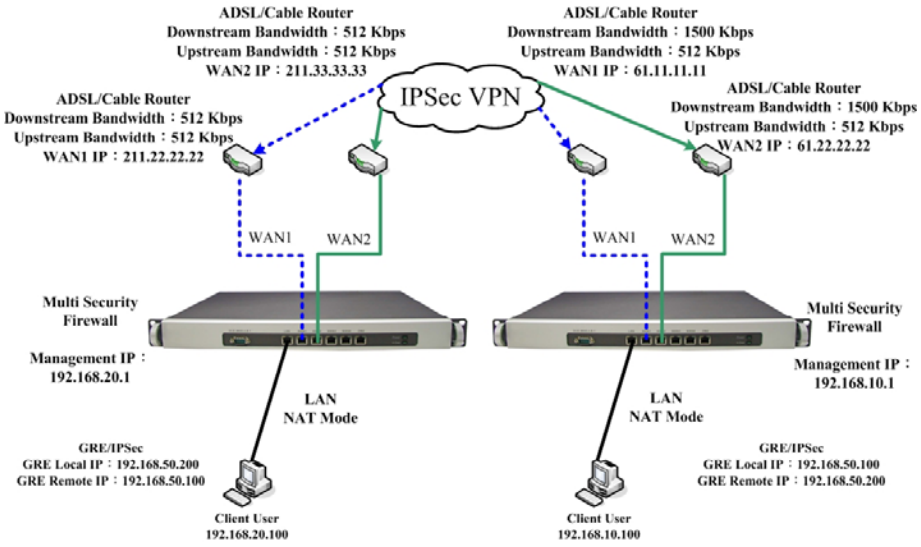


Figure 9.6

Chapter

10

SSL VPN

Note: *This function group is not available for SifoWorks U100 devices.*

With the advancements in technology, employees need for a mobile office is on the rise. Hence, many enterprises now require an ability to provide for convenient remote access to its mobile workers without compromising the security of its internal network. SifoWorks' SSL VPN function meets this demand.

An SSL VPN works through a standard web browser and uses the SSL protocol to encrypt data transmission through the Internet. Remote users can access the enterprise's remote network without installing any software or hardware, simplifying remote accesses for both end users and administrators.

10.1 Basic SSL VPN Configuration

Select **"Web VPN/SSL VPN > Setting"** to configure the basic settings of the SSL VPN.

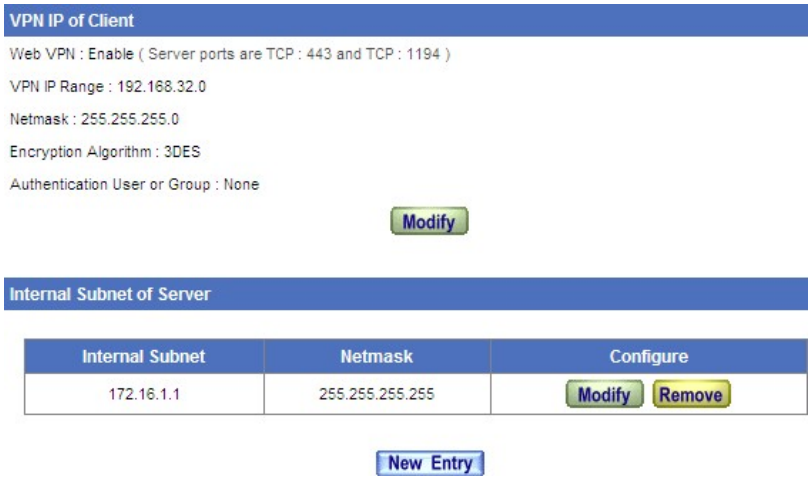


Figure 10.1

VPN IP of Client

The top half of the interface displays basic information of the current configured SSL VPN including the **IP range, netmask** and **encryption algorithm** etc.

Step 1: Click **[Modify]** to modify the VPN settings.

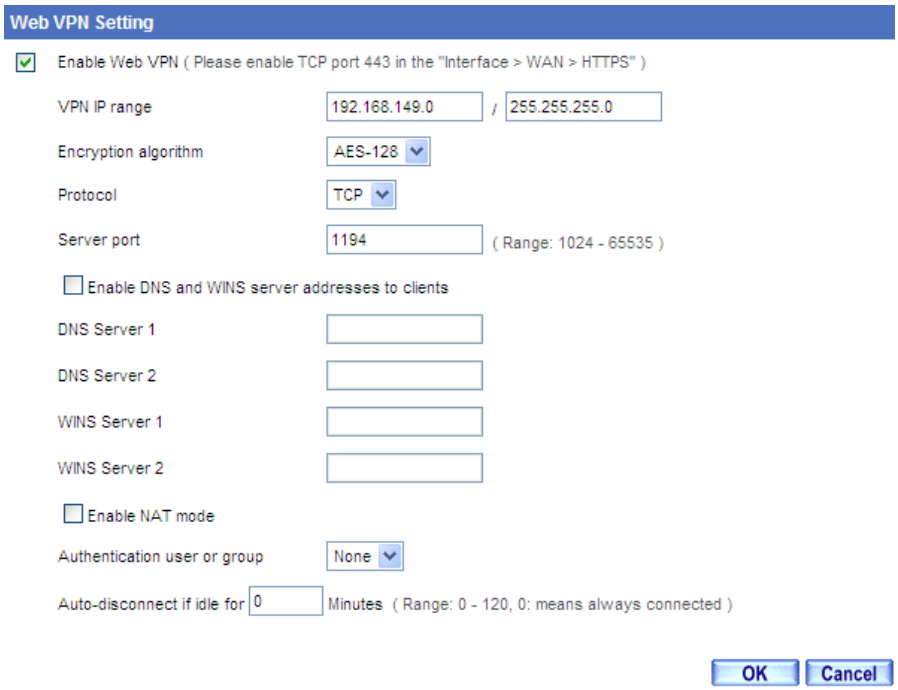


Figure 10.2

Step 2: Select to **Enable Web VPN**.

Step 3: Specify the subnet that remote VPN users belong to via the **VPN IP range**/netmask.

Step 4: Select the **Encryption algorithm** and the **Protocol** to be used between the server and the remote users.

Step 5: Specify the **Server port**.

Step 6: You can **Enable DNS and WINS server addresses** to be used by the remote clients.

Step 7: If enabled, please specify the IP addresses of the primary and/or secondary DNS and WINS servers.

Step 8: Select whether the remote users can access internal resources through **NAT mode**.

Step 9: Choose the **Authentication user** or user **group** that can remotely access the network via this SSL VPN server. Please refer to section "6.5 Authentication Users" and section "6.6 Authentication User Groups" for details on adding authentication users and user groups.

Step 10: Enter the **idle** timeout duration for remote connections.

Step 11: Click **[OK]** to save the settings.

Step 12: Note that you must enable **HTTPS** and enable **TCP port** 443 in "**Interface > WAN**". Please refer to section "3.2.2 WAN Interface" for details.

Note: *Remote users must enter the WAN interface IP address/sslvpn (such as https://192.168.1.2/sslvpn) in his web browser to access the login page for remote access via the configured SSL VPN.*

Internal Subnet of Server

The bottom half of the interface displays a list of internal subnets that can be accessed by authenticated users over the configured SSL VPN. Users will be able to access the servers located within these subnets after they are successfully authenticated and connected via the SSL VPN.

You can modify or remove a subnet from the list by clicking on the appropriate buttons in the **Configure** column.

Step 1: Click **[New Entry]** to add a new subnet into the list.

Step 2: Enter the **Subnet** address and corresponding **netmask**.

Step 3: Click **[OK]** to add this subnet.

10.2 SSL VPN Hardware Authentication

SifoWorks UTM SSL VPN hardware authentication function binds a user login account to the PC used to perform the login. For subsequent access attempts, the user can access SSL VPN directly via this PC without having to login. This greatly enhances user convenience as he need not repeatedly enter his login information.

To bind a user PC to his login account, the user must first login to SifoWorks SSL VPN via the PC. Administrators can then view the user's account to PC information by selecting **"Web VPN/SSL VPN > Hardware Auth"** from SifoWorks administrative interface. Select the users from the **Accepted Hardware Authentication User** list to bind their login account to the corresponding PC.

10.3 SSL VPN Connection Status

Select **"Web VPN/SSL VPN > Status"** to view the current user connection status of the configured SSL VPN tunnel. The list includes the connected **User Name**, **Real IP** address and the **VPN IP** address assigned by the SSL VPN. The **Uptime** of the user is also displayed.

Click **[Disconnect]** from the **Configure** column to disconnect the user.

Chapter

11

Mail Security

SifoWorks incorporates a function that checks for and maintains the security of sent and received emails in the network. Emails will be subjected to anti-spam and anti-virus checks before going through the mail relay function to be forwarded to the appropriate mail servers.

11.1 Configuring the Basic Settings

Select **"Mail Security > Configure > Setting"** to set up the basic configuration of the mail security function.

> ***Note:*** *Other than the parameters for* ***scanned and unscanned mail settings****, all other configuration options described below is not available for SifoWorks U100.*

Scanned and Un-scanned Mail Settings

Step 1: Specify the maximum size of mails that should be scanned for spam and viruses.

Step 2: You can also select whether to add a message to the subject line for mails that are not scanned.

Step 3: Enter the message to be inserted at the front of the subject line in the textbox provided.

Mail Notices

You can also set up the system to send a mail notice to notify the recipient that a spam/virus mail has been detected.

Step 1: Specify the **IP address** or **Domain Name** of the mail server to retrieve spam/virus mails from.

Step 2: Enter the **Mail Notice Subject** and the **Message** to be included in the notification mail.

Quarantined Mail Actions

Step 1: Define a **Storage lifetime** of spam/virus stored in quarantine. Quarantined mails will be automatically deleted when it exceeds this storage lifetime.

Step 2: Select to **Disable** multiple retrieving of quarantined mails.

Mail User Authentication

Step 1: To authenticate mail account users, specify the authentication **Login Port** number and select a **Login Authentication** method.

Step 2: Select whether to allow users to **Enable personal rule** setting.

Step 3: Select whether to allow users to **Write** mail from their **Personal Rule** web interface.

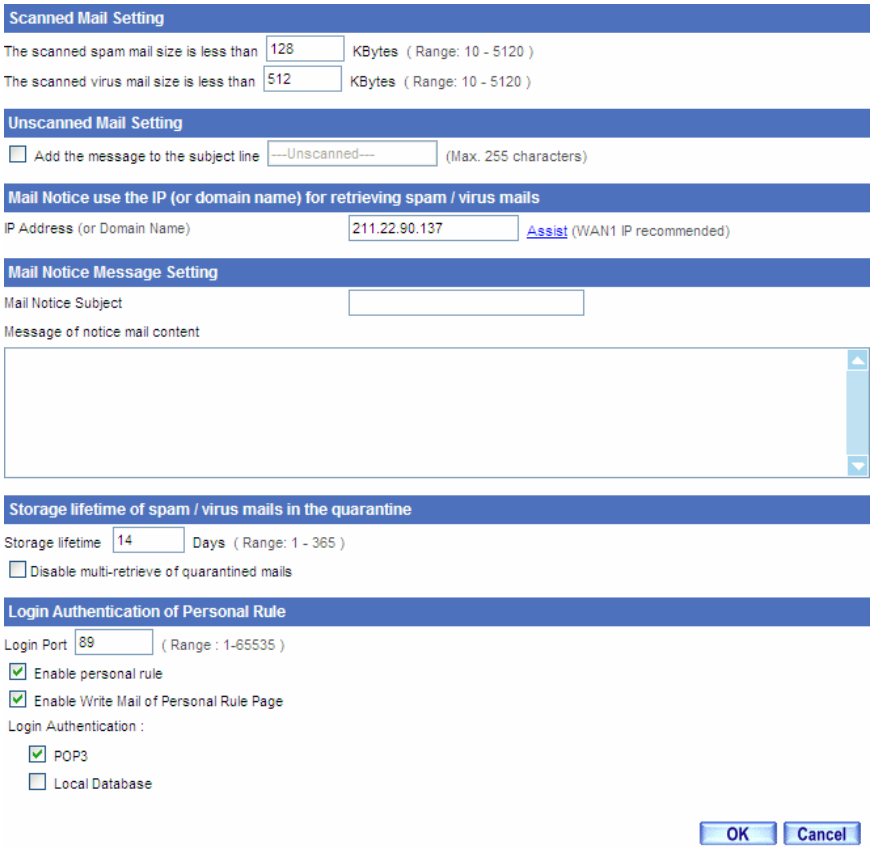

Scanned Mail Setting
The scanned spam mail size is less than 128 KBytes (Range: 10 - 5120)
The scanned virus mail size is less than 512 KBytes (Range: 10 - 5120)
Unscanned Mail Setting
Add the message to the subject line ---Unscanned--- (Max. 255 characters)
Mail Notice use the IP (or domain name) for retrieving spam / virus mails
IP Address (or Domain Name) 211.22.90.137 Assist (WAN1 IP recommended)
Mail Notice Message Setting
Mail Notice Subject
Message of notice mail content
Storage lifetime of spam / virus mails in the quarantine
Storage lifetime 14 Days (Range: 1 - 365)
Disable multi-retrieve of quarantined mails
Login Authentication of Personal Rule
Login Port 89 (Range : 1-65535)
Enable personal rule
Enable Write Mail of Personal Rule Page
Login Authentication :
POP3
Local Database
OK
Cancel

Figure 11.1

Click **[OK]** to save the configurations.

11.2 Mail Relay

After mails are scanned by the SifoWorks system, the system forwards the mails to their respective mail servers according to the settings in the mail relay function.

Select **"Mail Security > Configure > Mail Relay"** to view a list of mail servers to relay mails to. You can modify or remove any mail relay server from the list by clicking on the appropriate buttons in the **configure** column.

Step 1: Click **[New Entry]** to add a new relay server.

Step 2: If the mail server is located internally (LAN or DMZ), select **Domain Name of Internal Mail Server** and enter the **Domain Name** and **IP Address** of the mail server.

Note: *SifoWorks U100 does not support the use of LDAP servers. Therefore, please skip steps 3 to 5 if you are using a SifoWorks U100 device.*

Step 3: You can also select to **Enable LDAP** and set up the parameters of the LDAP server to retrieve the relay account information from.

Step 4: This includes the **LDAP Server IP** address, **Port** number, the **LDAP Search Base** (location of the directory from which the LDAP search begins), and the **User Name** and **Password** for authentication with the LDAP server.

Step 5: Click the **[Test]** link to test the connectivity between SifoWorks and the specified LDAP server.

Step 6: If the mail server is located externally, select **Allowed External IP of Mail Relay** and enter the external **IP Address** and **Netmask**.

Step 7: Click **[OK]** to add the new mail relay server.

Application Example 1

Objective – To set the mail server in DMZ using Transparent Routing mode

WAN IP: 61.11.11.11; Mail Server IP: 61.11.11.12

Step 1: **Add a mail relay**

Step 1.1: Select **"Mail Security > Configure > Mail Relay"**.

Step 1.2: Click **[New Entry]** to add a new mail relay with the following configuration:

Domain name of internal mail server

Domain name of mail server: abc.com.cn

IP address of mail server: 61.11.11.12

Step 1.3: Click **[OK]** to save the new mail relay.

Note: If **LDAP** is enabled, configure the LDAP server parameters accordingly. SifoWorks will retrieve the account information for this mail relay from the LDAP server once every 30 minutes. If LDAP is disabled, SifoWorks will confirm that mail accounts exist for this mail server. This is to validate the necessity of this mail relay.

Results of Configuration

An external sender is now able to send mail to the recipient account via the mail server at abc.com.cn.

Application Example 2

Objective – To deploy SifoWorks between the company's original gateway and the mail server

The mail server is in DMZ using transparent routing mode. IP address of the original gateway is 172.1.1.0/16 (LAN). SifoWorks WAN1 IP is 172.16.1.12. Mail Server IP is 172.16.1.13. WAN IP is 61.11.11.11.

Step 1: **Add a mail relay (Mail Server)**

Step 1.1: Select **"Mail Security > Configure > Mail Relay"**.

Step 1.2: Click **[New Entry]** to add a new mail relay with the following configuration:

Domain name of internal mail server

Domain name of mail server: abc.com.cn

IP address of mail server: 172.16.1.13

Step 1.3: Click **[OK]** to save the new mail relay.

Step 2: **Add a 2nd mail relay (External Sender)**

Step 2.1: Click **[New Entry]** to add a new mail relay with the following configuration:

Allowed External IP of Mail Relay

IP Address: 61.11.11.11, **Netmask:** 255.255.255.255

Step 2.2: Click **[OK]** to save the new mail relay.

Results of Configuration

LAN user, on the LAN segment 172.16.1.0/16 can now send mails to an external recipient on the external mail server via the abc.com.cn mail server.

Application Example 3

Objective – Headquarters to deploy SifoWorks as the gateway for employees to send mails through the mail server

The mail server is in DMZ using transparent routing mode. SifoWorks WAN1 IP is 61.11.11.11. Mail Server IP is 61.11.11.12. Branch office firewall WAN IP is 211.22.22.22.

Step 1: **Add a mail relay (Mail Server)**

Step 1.1: Select **"Mail Security > Configure > Mail Relay"**.

Step 1.2: Click **[New Entry]** to add a new mail relay with the following configuration:

Domain name of internal mail server

Domain name of mail server: abc.com.cn

IP address of mail server: 61.11.11.12

Step 1.3: Click **[OK]** to save the new mail relay.

Step 2: **Add a 2nd mail relay (External Sender from Branch Office)**

Step 2.1: Select **"Mail Security > Configure > Mail Relay"**.

Step 2.2: Click **[New Entry]** to add a new mail relay with the following configuration:

Allowed External IP of Mail Relay

IP Address: 211.22.22.22

Netmask: 255.255.255.255

Step 2.3: Click **[OK]** to save the new mail relay.

Results of Configuration

Employees in the branch office can now send mails to external recipient on an external mail server via the abc.com.cn mail server.

11.3 Mail Account

Note: *This function is not available for SifoWorks U100 devices.*

Select **"Mail Security > Configure > Mail Account"** to view the list of internal mail servers set up in the **"Mail Relay"** function. Please refer to section "11.2 Mail Relay" for details on setting up mail relay servers.

You can modify the accounts managed by a particular mail server by clicking the **[Modify]** button from the **Configure** column corresponding to the server.

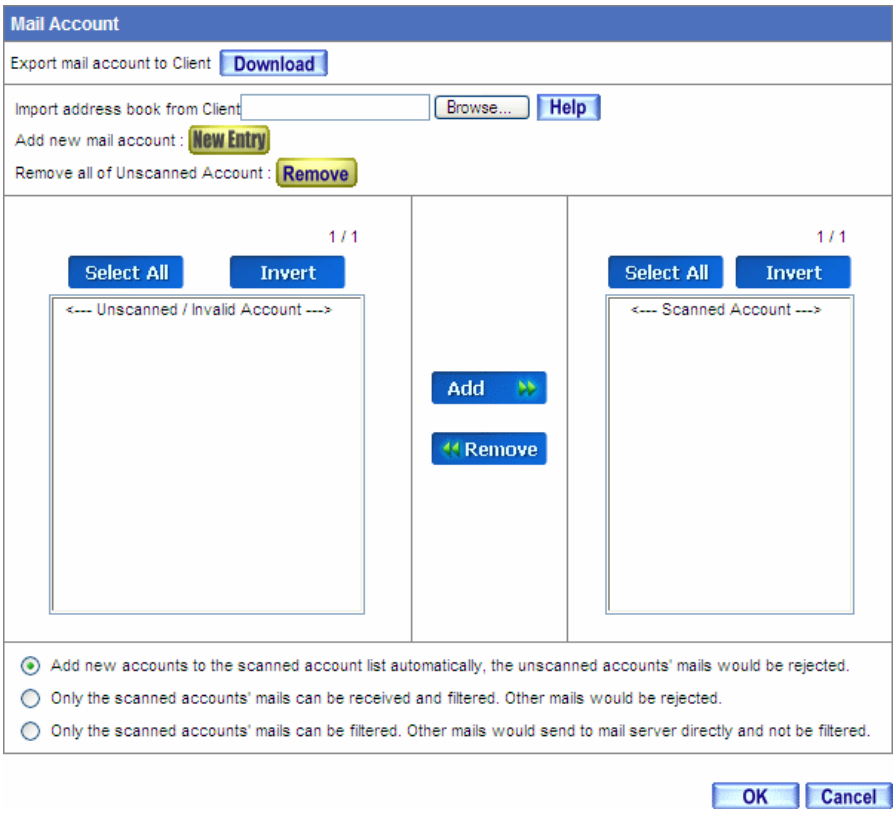

Mail Account
Export mail account to Client
Download
Import address book from Client
Browse...
Help
Add new mail account :
New Entry
Remove all of Unscanned Account :
Remove
1 / 1
Select All
Invert
<--- Unscanned / Invalid Account --->
Add
Remove
1 / 1
Select All
Invert
<--- Scanned Account --->
Add new accounts to the scanned account list automatically, the unscanned accounts' mails would be rejected.
Only the scanned accounts' mails can be received and filtered. Other mails would be rejected.
Only the scanned accounts' mails can be filtered. Other mails would send to mail server directly and not be filtered.
OK
Cancel

Figure 11.2

Export Mail Account

Click the **[Download]** button to export all mail accounts in this server to a file.

Import Mail Accounts

Step 1: To import mail accounts, click **[Browse...]**.

Step 2: Select the file containing the addresses to be uploaded. You can click **[Help]** for details on exporting the address book from your mail client.

Step 3: To **add a new mail account**, click **[New Entry]** and enter the mail address. Click **[OK]** to add the mail account.

Click **[Remove]** to remove all mail accounts in the **unscanned accounts** list from the server. Unscanned accounts refer to all mail accounts that are not scanned for spam mail.

Select Accounts to be Scanned

Step 1: From the middle portion of the interface, you can select the accounts to be scanned for spam/virus mails from the **unscanned/invalid account** list and click **[Add>>]** to move them into the **scanned account** list. Mails from all mail accounts in the scanned account list will be scanned for spam.

Step 2: Select the account from the **scanned account** list and click **[<<Remove]** to stop scanning the mails sent/received by these addresses.

Action to be Performed on Received Mails

The bottom part of the interface presents you with three choices of managing the mails received by the mail accounts in this server. They include:

1. Automatically **add new accounts to the scanned account list**. All mails sent to accounts in the **unscanned account** list will be rejected.

2. Only mails sent to addresses in the **scanned accounts** list will be received and filtered. All other mails will be rejected. New mail accounts added will not be automatically placed in the **scanned accounts** list.

3. Only mails sent to addresses in the **scanned accounts** list will be filtered. All other mails will be sent to the mail server directly without being scanned. New mail accounts added will not be automatically placed in the **scanned accounts list**.

Note: *The third option is mainly for testing purposes. For the security of your network, we do not recommend the use of this option when deploying the mail security function in an actual network situation.*

Application Example

Objective – To allow or deny mails from the internal mail server using SifoWorks mail account function

Step 1: **Add a mail relay**

Step 1.1: Select **"Mail Security > Configure > Mail Relay"**.

Step 1.2: Click **[New Entry]** to add a new mail relay with the following configuration:

Domain name of internal mail server

Domain name of mail server: abc.com.cn

IP address of mail server: 192.168.139.10

Step 1.3: Click **[OK]** to save the new mail relay.

Step 2: **Modify the mail account**

Step 2.1: Select **"Mail Security > Configure > Mail Account"**.

Step 2.2: Click **[Modify]** corresponding to the mail relay added in the previous step. The mail account configuration for this mail relay is displayed.

A list of all mail accounts for the mail server is listed in the **<--- scanned account --->** list box.

Step 3: **Add a mail account into the server**

Step 3.1: Click **[New Entry]** to add a new mail account.

Step 3.2: Enter the account name in the next interface. Click **[OK]** to add the account.

Tip: *You can also import mail accounts from an address book in your email client (such as Outlook). Export and save the address book into a file and click **[Import]**. Select the exported address book file and click **[OK]** to import the mail accounts in the file.*

Step 4: **Select the accounts not allowed to receive mails from this server**

Step 4.1: In the *Mail Account* interface, select the accounts that will be denied receipt of mails from the mail server from the **<--- Scanned Account --->** list.

Step 4.2: Click **[<<Remove]** to move the selected accounts into the **<--- Unscanned / Invalid Account --->** list.

Step 4.3: Select **Only scanned accounts' mails can be received and filtered. Other mails would be rejected** from the bottom of the interface.

Step 4.4: Click **[OK]** to save the mail account setting.

Results of Configuration

When SifoWorks receives a mail for this mail server, the system checks the mail recipient against the setting in **"Mail Account"**.

If the mail recipient's account is in the **scanned account** list, SifoWorks will send the mail to the internal mail server.

If the mail recipient's account is in the **unscanned account** list, SifoWorks will delete the mail.

11.4 Mail Notice

Note: *This function is not available for SifoWorks U100 devices.*

For each internal mail server configured in the **"Mail Relay"** function, you can configure a notification mail to be sent to recipients at a scheduled time.

Step 1: Select **"Mail Security > Configure > Mail Notice"** from the left menu to view the list of internal mail servers as set up in the **"Mail Security > Configure > Mail Relay"** function.

Step 2: Click the **[Modify]** button corresponding to a mail server to set up the notification mail for that server.

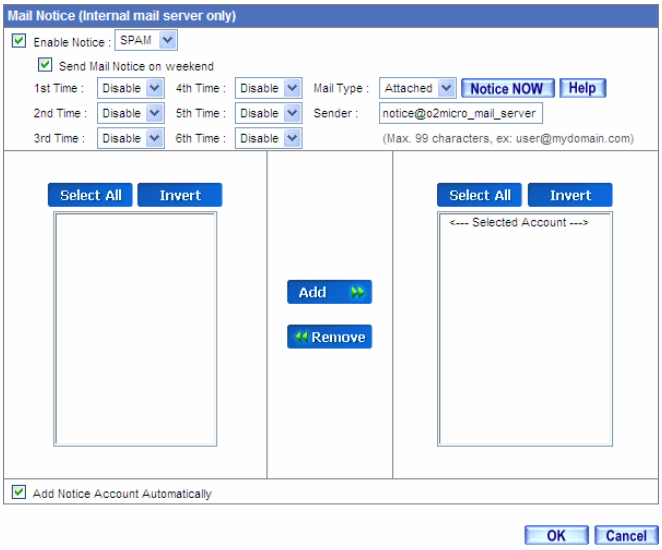


Figure 11.3

Step 3: **Enable notice** for either "SPAM" mails, "Virus" mails or both.

Step 4: Mail notices will be sent to the recipients up to 6 times daily every weekday at the times selected in **1st-6th Time** fields.

Step 5: Select **send mail notice on weekend** to enable the sending of notification mails on weekends.

Step 6: The notification mail will contain a list of the detected spam/virus mails along with a customizable notice message (section "11.1 Configuring the Basic Settings"). You can select whether to send this list as an attachment or as HTML in the mail. Users will be able to retrieve quarantined mails from this list.

Step 7: Enter the **sender** address.

Step 8: Select the account from the left list and click **[Add>>]** to add the account into the **selected account** list.

Step 9: To stop sending notification mails to an account, select it from the **selected account** list and click **[<<Remove]** to remove it from the list. Only accounts in the **selected account** list will receive notification mails.

Step 10: Click **[Notice NOW]** to send a notice mail to the selected accounts immediately.

Step 11: Enabling **add notice account automatically** will send mail notifications to all new accounts added in the **"Mail Account"** function (section "11.3 Mail Account").

Step 12: Click **[OK]** to save the configurations.

Application Example

Objective – To send notification mails to the recipient when spam mails are received

Step 1: **Add a mail relay**

Step 1.1: Select **"Mail Security > Configure > Mail Relay"**.

Step 1.2: Click **[New Entry]** to add a new mail relay with the following configuration:

Domain name of internal mail server

Domain name of mail server: o2micro.com

IP address of mail server: 192.168.139.10

Step 1.3: Click **[OK]** to save the new mail relay.

Step 2: **Modify the mail notification settings**

Step 2.1: Select **"Mail Security > Configure > Mail Notice"**.

Step 2.2: Click **[Modify]** corresponding to the mail relay added in the previous step. The mail notice configuration for this mail relay is displayed.

Step 2.3: Configure the parameters as follows:

Select **enable Notice:** Both

Select **send mail notice on weekends**

1st Time: 00:00

2nd Time: 04:00

3rd Time: 08:00

4th Time: 12:00

5th Time: 16:00

6th Time: 20:00

Mail Type: HTML

Sender: notice@o2micro.com

Step 2.4: From the list box on the left, select the mail accounts that will receive spam/virus mail notification and click **[Add>>]** to add them into the **selected account** list.

Step 2.5: Select **Add new notice account automatically**.

Step 2.6: Click **[OK]** to save the configuration.

Results of Configuration

SifoWorks will send notification mails to the selected accounts at the specified time if spam/virus mails were received or sent from that account. An example of a notification mail is displayed in the figure below:

From: notice@o2-tplab.com To: anthony@o2-tplab.com
Subject: Spam Mail Notice (1 Inbound / 0 Outbound Spam Mail)
Spam Mail Notice
Mail Account: anthony@o2-tplab.com
Time: 2007-05-23 12:00:00 ~ 2007-05-23 13:24:00
Total 1 Inbound / 0 Outbound Spam Mail
Instruction:
This mail is sent from SifoWorks. You can open the attached file for following your demands to operate.
1.If you want to retrieve or resend the mails from appliance quarantine, please open the attatched file, then selecting wanted mails.
Click "Retrieve" or "Resend" button.
2.If you want to modify the setting of mail notice and personal rule, please click "Personal Rule" to setting.
Inbound
Sender
Subject
Time
Attached
Quarantine
test5@o2-tplab.com
u500 test mail
13:00
V

Figure 11.4

From the notification mail, the user can:

1. Select the mails from the list and click **[Retrieve]** to retrieve the mails from the mail server (for incoming mails).

2. Select the mails from the list and click **[Resend]** to resend the mails (for outgoing mails).

Note that only quarantined mails can be retrieved or resent.

11.4.1 Personal Rule

Note: *The personal rule function is not available to end-users if you are using the SifoWorks U100 device.*

Step 1: Mail recipients can also customize the mail notice configurations for their specific account. From the received notification mails, click the **[Personal Rule]** link.

Step 2: Users must first be authenticated before they are allowed to modify their personal rule. Please refer to section "11.1 Configuring the Basic Settings" to set up the authentication port and method for mail users.

Step 3: After successful login, the user can select to enable or disable notice for spam mail, virus mail or both.

Step 4: He can also select whether to receive notice mails over the weekend and whether to receive the notification mail list as an attachment or in HTML format.

Step 5: Click **[OK]** to save the changes.

Note: *After a user disables notice in his personal rule setting, if he wishes to receive notification mails, he must re-enable notice in the personal rule interface and contact the administrator to add his account into the list of accounts to send notification mails to.*

Application Example 1

Objective – Setting of notification personal rule by user

Step 1: **Login to the personal rule interface**

From the notification email received, click the **Personal Rule** link found on the top of the first list.

Step 2: **Modify the mail notification settings**

Step 2.1: Click **[Notice]** from the top of the interface.

Step 2.2: Configure the parameters as follows:

Select **enable Notice:** Both

Unselect **send mail notice on weekends**

Mail Type: HTML

Step 2.3: Click **[OK]** to save the configuration.

Step 3: **Modify the notification mail language settings**

Step 3.1: Click **[Language]** from the top of the interface.

Step 3.2: Select **English Version**.

Step 3.3: Click **[OK]** to save the configuration.

Results of Configuration

SifoWorks now disables the sending of mail notification on weekends for this user mail account only. Note that the notification configuration set by the administrator on the SifoWorks system will still apply to all other users.

The user can also configure other personal rules including email whitelist, blacklist and user password etc by clicking on the appropriate buttons from the top of the personal rule interface.

Application Example 2

Objective – Enable mail notification in user personal rule after user disables the notification

Here, the user has previously disabled mail notification in his personal rule interface.

Administrator

Step 1: **Configure basic settings of the mail security function**

Step 1.1: Select **"Mail Security > Configure > Setting"**.

Step 1.2: Configure the following in the *"Login Authentication of Personal Rule"* portion at the bottom of the interface.

Login Port: 89

Login Authentication: Select both "POP3" and "Local Database"

User

Step 2: **Login to the personal rule interface**

Step 2.1: Activate the web browser and access the SifoWorks LAN address at port 89.

Step 2.2: The *Personal Rule Login* page will be displayed. Login to the user personal rule by entering the user **email address** and mail **password**.

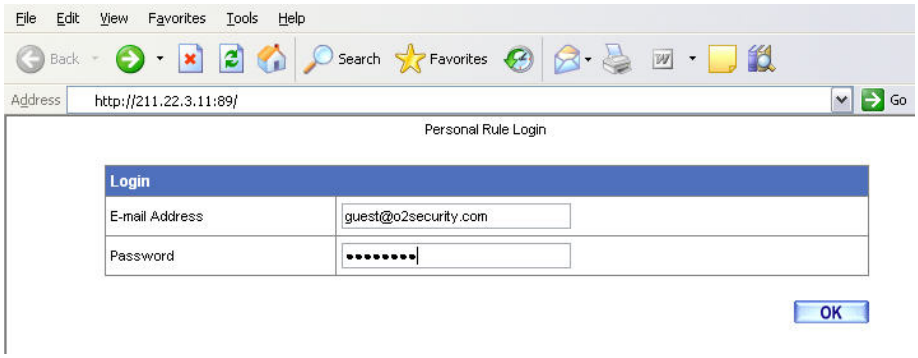


Figure 11.5

Step 3: **Modify the mail notification settings**

Step 3.1: Click **[Notice]** from the top of the interface.

Step 3.2: Configure the parameters as follows:

Select **enable Notice:** Both

Select **send mail notice on weekends**

Mail Type: HTML

Step 3.3: Click **[OK]** to save the configuration.

Results of Configuration

The user will now receive mail notification from SifoWorks.

The user can either login to modify his personal rule via the link in the notification mails or through accessing SifoWorks LAN interface at port 89.

Application Example 3

Objective – To allow user to access mail inbox via personal rule interface

Step 1: **Access the personal rule interface**

Step 1.1: Click the **personal rule** link from the notification mail received.

Step 2: **Access user's mail via the web**

Click **[Webmail]** from the top of the interface to access the user's mail box via the web browser.

Results of Configuration

The user can read the mails in his inbox and send mails using this web interface. The user web inbox is divided into 3 folders:

1. Archive: contains all non-spam mails that were sent to the user
2. Spam mail: contains all spam mails that were sent to the user
3. Virus mail: contains all virus mails sent to the user.

11.5 Anti-Spam

Here you can set up the settings for the anti-spam function.

Filtering spam mails received by the system reduces the burden on the mail servers and can also increase work efficiency as the users need not spend time sorting and removing spam mail from his inbox.

11.5.1 Basic Settings

Select **"Mail Security > Anti-Spam > Setting"** to configure the basic anti-spam settings.

Spam Setting

Step 1: In this configuration interface, select to **Enable Anti-Spam** and select whether to inspect inbound and/or outbound mails from **Internal** and/or **External Mail Servers**.

> ***Note:*** *You can only select to enable anti-spam scan on inbound mails for SifoWorks U100, U200 and U210 devices.*

Step 2: Specify the **threshold score** of spam mails. All mails with a score higher than this threshold will be classified as spam.

Step 3: Enter the message to be added to the spam mail's subject line.

Step 4: Select your desired options for the spam mail check settings. Note that the greylist check mechanism is not available for SifoWorks U100.

> **Tip:** *Click **[Test]** to test that the checks are working correctly.*

Step 5: Specify whether global rules (defined by administrators) or personal rules (defined by users) take **Priority** in deciding whether a mail should be classified as spam mail. Note that this is not available for SifoWorks U100.

Action of Inbound Spam Mail

Step 6: Select the action to perform on the detected inbound spam mails. When the mail's recipient is on an internal mail server, you can either **Delete** the mail, continue to **Deliver** the mail to the recipient, **Forward** the mail to the specified mail address or store

the mail in a **Quarantine** folder. Note that you cannot select to quarantine mails on SifoWorks U100 devices.

If the mail recipient is on an external mail server, you can only select to **Deliver** the mail to the recipient and/or store the mail in a **Quarantine** folder. Note that you cannot select to quarantine mails on SifoWorks U100 devices.

Action of Outbound Spam Mail

Note: *This configuration is not available for SifoWorks U100, U200 and U210 devices.*

Step 7: Select the action to perform on the detected inbound spam mails. When the sender is on an internal mail server, you can either continue to **Deliver** the mail to the recipient and/or store the mail in a **Quarantine** folder.

If the sender is on an external mail server, you can either **Delete** the mail, continue to **Deliver** the mail to the recipient, store the mail in a **Quarantine** folder or notify the sender of the detected spam.

Step 8: Click **[OK]** to save the configuration.

Application Example

Objective – To set up the system to check if the received mails are spam mails

Step 1: **Allow LAN users to receive mails from the external mail server**

Set the IP address of the network adaptor to correspond to the external DNS server.

Step 2: **Allow WAN users to receive mail from the internal mail server**

Mail server is in DMZ. Server name is o2micro.com.

Step 2.1: Select "**Interface > WAN**"

Step 2.2: Modify the WAN1 port such that the **IP address** is 61.11.11.12 and the DNS address corresponds to the external DNS server.

Step 3: **Add a DMZ address object**

Step 3.1: Select "**Policy Object > Address > DMZ**".

Step 3.2: Click **[New Entry]** to add a new DMZ address object with the following configurations:

Name: Mail_Server

IP Address: 61.11.11.12

Netmask: 255.255.255.255

Step 3.3: Click **[OK]** to save the configuration.

Step 4: **Add a mail service group**

Step 4.1: Select "**Policy Object > Service > Group**".

Step 4.2: Click **[New Entry]** to add a new service group with the Name Mail_Svc_1.

Step 4.3: Select the services "POP3" and "SMTP" and click [Add>>] to add these services as members of the group.

Step 4.4: Click **[OK]** to save the configuration.

Step 4.5: Repeat steps 4.2 to 4.4 to add another service group ("Mail_Svc_2") with the services "POP3", "SMTP" and "DNS".

Step 5: **Add a outgoing policy**

Step 5.1: Select "**Policy > Outgoing**".

Step 5.2: Click **[New Entry]** to add an outgoing policy with the following configurations:

Source IP: Inside_Any

Destination IP: Outside_Any

Service: Mail_Svc_2

Action, WAN Port: Permit All

Step 5.3: Click **[OK]** to save the new policy.

Step 6: **Add a WAN to DMZ policy**

Step 6.1: Select "**Policy > WAN to DMZ**".

Step 6.2: Click **[New Entry]** to add a new WAN to DMZ policy with the following configurations:

Source IP: Outside_Any

Destination IP: Mail_Server

Service: Mail_Svc_1

Action: Permit

Step 6.3: Click **[OK]** to save the new policy.

Step 7: **Add a DMZ to WAN policy**

Step 7.1: Select "**Policy > DMZ to WAN**".

Step 7.2: Click **[New Entry]** to add a new DMZ to WAN policy with the following configurations:

Source IP: Mail_Server

Destination IP: Outside_Any

Service: Mail_Svc_2

Action: Permit

Step 7.3: Click **[OK]** to save the new policy.

Step 8: **Configure the Anti-Spam settings**

Step 8.1: Select "**Mail Security > Anti-Spam > Setting**".

Step 8.2: **Enable Anti-spam** and configure the parameters as shown in the figures below.

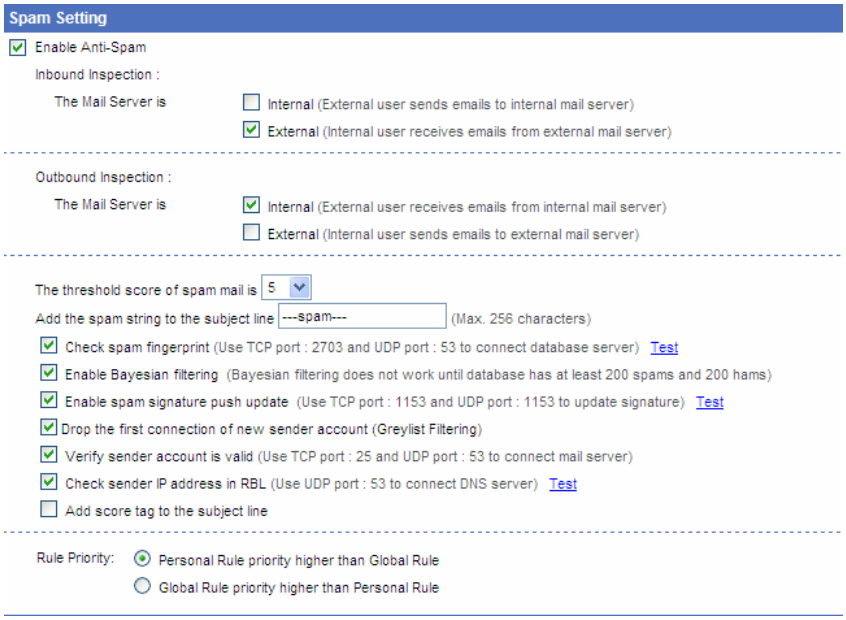

Spam Setting
Enable Anti-Spam
Inbound Inspection :
The Mail Server is
Internal (External user sends emails to internal mail server)
External (Internal user receives emails from external mail server)
Outbound Inspection :
The Mail Server is
Internal (External user receives emails from internal mail server)
External (Internal user sends emails to external mail server)
The threshold score of spam mail is 5
Add the spam string to the subject line ---spam---
(Max. 256 characters)
Check spam fingerprint (Use TCP port : 2703 and UDP port : 53 to connect database server) Test
Enable Bayesian filtering (Bayesian filtering does not work until database has at least 200 spams and 200 hams)
Enable spam signature push update (Use TCP port : 1153 and UDP port : 1153 to update signature) Test
Drop the first connection of new sender account (Greylist Filtering)
Verify sender account is valid (Use TCP port : 25 and UDP port : 53 to connect mail server)
Check sender IP address in RBL (Use UDP port : 53 to connect DNS server) Test
Add score tag to the subject line
Rule Priority:
Personal Rule priority higher than Global Rule
Global Rule priority higher than Personal Rule

Figure 11.6

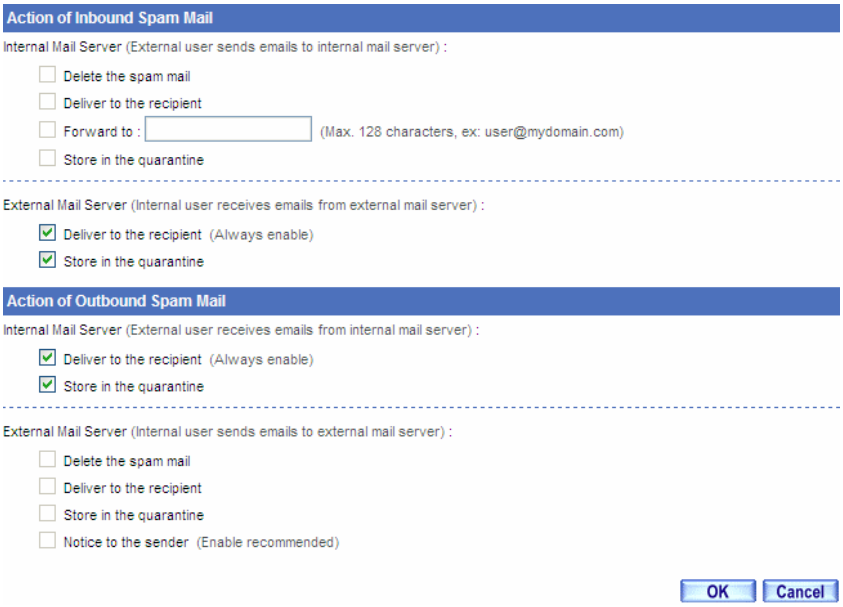

Action of Inbound Spam Mail
Internal Mail Server (External user sends emails to internal mail server) :
Delete the spam mail
Deliver to the recipient
Forward to :
(Max. 128 characters, ex: user@mydomain.com)
Store in the quarantine
External Mail Server (Internal user receives emails from external mail server) :
Deliver to the recipient (Always enable)
Store in the quarantine
Action of Outbound Spam Mail
Internal Mail Server (External user receives emails from internal mail server) :
Deliver to the recipient (Always enable)
Store in the quarantine
External Mail Server (Internal user sends emails to external mail server) :
Delete the spam mail
Deliver to the recipient
Store in the quarantine
Notice to the sender (Enable recommended)
OK
Cancel

Figure 11.7

Step 8.3: Click **[OK]** to save the configuration.

Results of Configuration

Inbound and outbound mails received by users on the internal mail server or the external mail server are now checked for spam. The checks performed depend on the setting performed in step 8 above.

Administrators can check the list of detected spam mails from the **"Mail Security > Anti-Spam > Spam Mails"** log list. Please refer to section "11.5.7 Spam Mail Log List" for details.

11.5.2 Spam Rules - Global

Select **"Mail Security > Anti-Spam > Global Rule"**. Here, a list of rules for the checking of spam mails can be viewed. The rules in this list apply to all mails that are scanned. You can modify or remove a rule by clicking the appropriate buttons in the **Configure** column.

Step 1: To add a new rule, click **[New Entry]** from the bottom of the list.

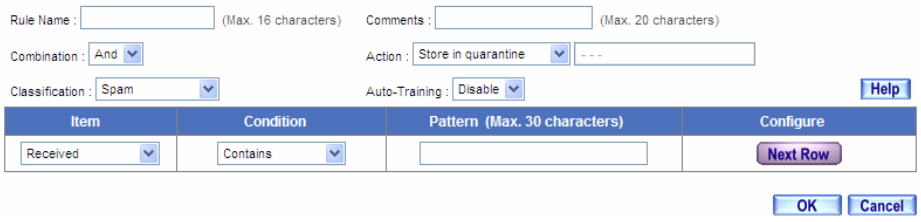


Figure 11.8

Step 2: Enter the **Rule Name** and **Comments** if any.

Step 3: Select whether to classify mails that matches this rule as "spam" mails or "ham" mails.

Step 4: Also select whether to enable **Auto-Training** for the system to automatically learn the classification of mails matching this rule. Auto-training will take place daily at the scheduled time. Please refer to section "11.5.6 Automatic System Spam Mail Training" for details.

Step 5: Select the **Action** to take on the mails matching the rule. If the action "forward to" is selected, you must also enter the email address to forward the mail to in the adjacent textbox.

You can add multiple matching patterns within a single rule. The list below displays the criteria that are matched to mails by this rule.

Step 6: Specify the **Item** of the mail to check and the **Pattern** to check against. Select the **Condition** of the check and click **[Next Row]** to add the new criteria into the list. Note that the **Conditions** available for selection differ according to the check **Item**.

Step 7: Click **[Remove]** to delete a criteria from the list.

Step 8: When "And" is selected in the **Combination** field, only mails matching every criterion in the list will match this rule. If "Or" is selected, a mail matches the rule as long as it fulfils one of the criteria in the list.

Step 9: Click **[OK]** to add the new rule.

Application Example

Objective – Deploy SifoWorks between the company's original gateway and mail server and filter mails using global rules

In this example, the mail server is in DMZ, transparent routing mode. Mail server IP is 172.16.1.13, server name is o2micro.com, DNS IP corresponds to the external DNS server.

The company's original gateway LAN segment is 172.16.1.0/16, WAN port IP is 61.11.11.11. SifoWorks' WAN1 port IP is 172.16.1.12.

Step 1: **Add a DMZ address object**

Step 1.1: Select "**Interface > DMZ**" and enable "Transparent Routing" mode.

Step 1.2: Select "**Policy Object > Address > DMZ**".

Step 1.3: Click **[New Entry]** and add a new DMZ address object with the following parameters:

Name: Mail_Server

IP: 172.16.1.13

Netmask: 255.255.255.255

Step 1.4: Click **[OK]** to save the new DMZ object.

Step 2: **Add a mail service group**

Step 2.1: Select "**Policy Object > Service > Group**".

Step 2.2: Click **[New Entry]** to add a new service group with the Name Mail_Svc_1.

Step 2.3: Select the services "POP3" and "SMTP" and click **[Add>>]** to add these services as members of the group.

Step 2.4: Click **[OK]** to save the configuration.

Step 2.5: Repeat steps 4.2 to 4.4 to add another service group ("Mail_Svc_2") with the services "POP3", "SMTP" and "DNS".

Step 3: **Add a WAN to DMZ policy**

Step 3.1: Select "**Policy > WAN to DMZ**".

Step 3.2: Click **[New Entry]** to add a new WAN to DMZ policy with the following configurations:

Source IP: Outside_Any

Destination IP: Mail_Server

Service: Mail_Svc_1

Action: Permit

Step 3.3: Click **[OK]** to save the new policy.

Step 4: **Add a DMZ to WAN policy**

Step 4.1: Select "**Policy > DMZ to WAN**".

Step 4.2: Click **[New Entry]** to add a new DMZ to WAN policy with the following configurations:

Source IP: Mail_Server

Destination IP: Outside_Any

Service: Mail_Svc_2

Action: Permit

Step 4.3: Click **[OK]** to save the new policy.

Step 5: **Configure the mail relay (Mail server)**

Step 5.1: Select "**Mail Security > Configure > Mail Relay**".

Step 5.2: Click **[New Entry]** to add a new mail relay with the following parameters

Domain name of internal mail server

Domain name of mail server: o2micro.com

IP address of mail server: 172.16.1.13

Step 5.3: Click **[OK]** to save the new mail relay.

Step 6: **Configure the mail relay (Original gateway)**

Step 6.1: Select "**Mail Security > Configure > Mail Relay**".

Step 6.2: Click **[New Entry]** to add a new mail relay with the following parameters

Allowed External IP of Mail Relay

IP address: 61.11.11.11

Netmask: 255.255.255.255

Step 6.3: Click **[OK]** to save the new mail relay.

Step 7: **Configure the Anti-Spam settings**

Step 7.1: Select "**Mail Security > Anti-Spam > Setting**".

Step 7.2: **Enable Anti-spam** and configure the parameters as shown in the figure below.

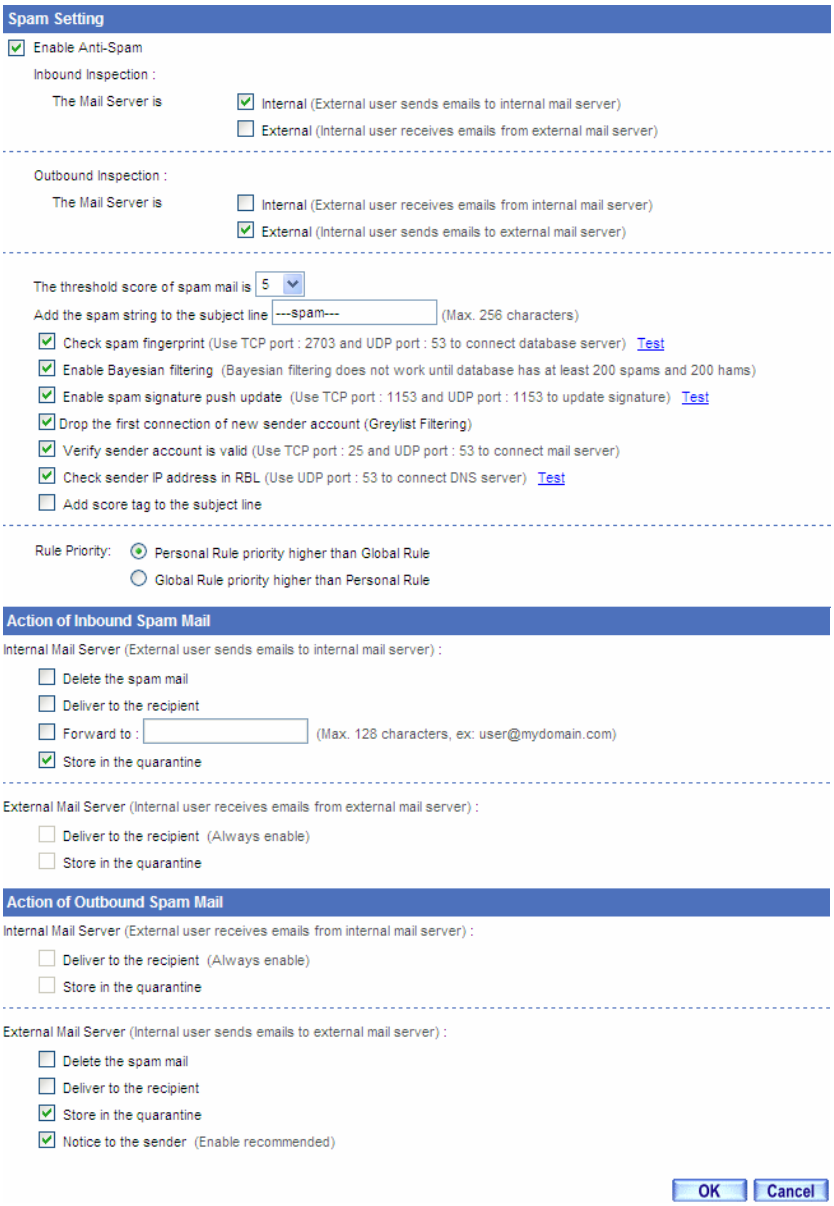

Spam Setting
Enable Anti-Spam
Inbound Inspection :
The Mail Server is
Internal (External user sends emails to internal mail server)
External (Internal user receives emails from external mail server)
Outbound Inspection :
The Mail Server is
Internal (External user receives emails from internal mail server)
External (Internal user sends emails to external mail server)
The threshold score of spam mail is 5
Add the spam string to the subject line ---spam--- (Max. 256 characters)
Check spam fingerprint (Use TCP port : 2703 and UDP port : 53 to connect database server) Test
Enable Bayesian filtering (Bayesian filtering does not work until database has at least 200 spams and 200 hams)
Enable spam signature push update (Use TCP port : 1153 and UDP port : 1153 to update signature) Test
Drop the first connection of new sender account (Greylist Filtering)
Verify sender account is valid (Use TCP port : 25 and UDP port : 53 to connect mail server)
Check sender IP address in RBL (Use UDP port : 53 to connect DNS server) Test
Add score tag to the subject line
Rule Priority:
Personal Rule priority higher than Global Rule
Global Rule priority higher than Personal Rule
Action of Inbound Spam Mail
Internal Mail Server (External user sends emails to internal mail server) :
Delete the spam mail
Deliver to the recipient
Forward to : (Max. 128 characters, ex: user@mydomain.com)
Store in the quarantine
External Mail Server (Internal user receives emails from external mail server) :
Deliver to the recipient (Always enable)
Store in the quarantine
Action of Outbound Spam Mail
Internal Mail Server (External user receives emails from internal mail server) :
Deliver to the recipient (Always enable)
Store in the quarantine
External Mail Server (Internal user sends emails to external mail server) :
Delete the spam mail
Deliver to the recipient
Store in the quarantine
Notice to the sender (Enable recommended)
OK
Cancel

Figure 11.9

Step 7.3: Click **[OK]** to save the configuration.

Step 8: **Add global rule for Ham (non-spam) mails**

Step 8.1: Select "**Mail Security > Anti-Spam > Global Rule**".

Step 8.2: Click **[New Entry]** to add a new global rule with the following parameters

Rule Name: Ham_Mail

Comments: Determines Ham Mail

Combination: Or

Classification: Ham (Non-Spam)

Step 8.3: Enable **Auto-training**.

Step 8.4: In the list below, select “From” for **Item**, “Contains” for **condition** and enter “share2k01” for pattern.

Step 8.5: Click **[Next Row]**

Step 8.6: Repeat steps 8.4 to 8.5 to add more matching criteria into the rule.

Step 8.7: Click **[OK]** to save the new global rule.

Step 9: **Add global rule for spam mails**

Step 9.1: Select “**Mail Security > Anti-Spam > Global Rule**”.

Step 9.2: Click **[New Entry]** to add a new global rule with the following parameters

Rule Name: Spam_Mail

Comments: Determines Spam Mail

Combination: Or

Classification: Spam

Action: Store in quarantine

Step 9.3: Enable **Auto-training**.

Step 9.4: In the list below, select “From” for **Item**, “Contains” for **condition** and enter “yahoo” for pattern.

Step 9.5: Click **[Next Row]**

Step 9.6: Repeat steps 8.4 to 8.5 to add more matching criteria into the rule.

Step 9.7: Click **[OK]** to save the new global rule.

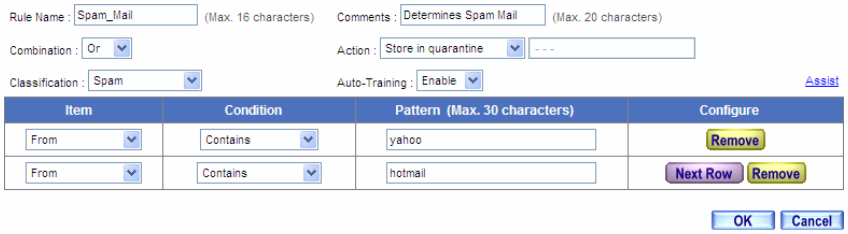


Figure 11.10

Results of Configuration

The 2 global rules are now used to check for spam mails. Note that rules are checked by the system in a top down manner.

For example, when an external yahoo account (share2k01@yahoo.com) sends a mail to the internal mail server account (abc@o2micro.com), this mail will be classified as ham mail according to the first rule even though it contains the string “yahoo”.

However, if the sender account is share2k02@yahoo.com, the mail will be classified as spam according to the second rule and stored in quarantine.

Administrators can view all detected spam mails from **"Mail Security > Anti-Spam > Spam Mails"**. Please refer to section "11.5.7 Spam Mail Log List" for details.

11.5.3 Spam Rules – Personal

Note: *This function is not available for SifoWorks U100 devices.*

Select **"System > Anti-Spam > Personal Rule"** to view the list of internal mail servers as configured in the **"Mail Relay"** function (section "11.2 Mail Relay").

Step 1: Click **[Modify]** to view the accounts in the mail server.

Step 2: From the list of accounts, click **[Modify]** in the **configure** column to view the personal rules set up by the user.

Mail users can login to SifoWorks using their mail server's IP address and the authentication port configured by the SifoWorks' administrator (section "11.1 Configuring the Basic Settings").

They can also access this interface by clicking the **[Personal Rule]** link found in the notification mails sent by the system.

From the interface, they can **search** for the mails filtered by SifoWorks, add sender/receiver email addresses to their **whitelist** and **blacklist**, change the **language** of their received notice mail and change their authentication **password** used to login to the personal rule interface.

Note: *Administrators must select "Local Database" as a* ***login authentication*** *method in* ***"Mail Security > Configure > Setting"*** *to enable users to change their login password in the personal rule interface.*

11.5.4 Email Address Whitelist

You can set up a list of email addresses such that mails from these addresses are sent to the recipient without having to be checked by the anti-spam function.

Select **"Mail Security > Anti-Spam > Whitelist"** to view the list of allowed email addresses. You can modify or remove an address from the list by clicking the appropriate buttons in the **Configure** column.

Step 1: Click **[New Entry]** to add a new allowed email address.

Step 2: Enter the white list email address. You can either input the entire email address (such as "email@emaildomain.com") or use the wildcard character "*". For example "*yahoo*" will represent all email addresses containing the string "yahoo".

Step 3: In the **Direction** field, select whether the email address is to correspond to the mail's sender email ("from") or recipient email ("To").

Step 4: Lastly, enable or disable **Auto-Training** for the system to automatically learn that mails with this email address are classified as "ham" (non-spam) mail. Auto-training will take place at the scheduled time daily. Please refer to section "11.5.6 Automatic System Spam Mail Training" for details.

Step 5: Click **[OK]** to add the new allowed email address.

Export Whitelist to Client

You can save the system's email whitelist to a file stored locally. Click **[Download]** to export the list.

Import Whitelist from Client

Step 1: To import a list of email addresses from a local file into the SifoWorks U-series system, click **[Browse…]** and select the file to upload.

Step 2: Click **[OK]** to begin the import.

11.5.5 Email Address Blacklist

You can set up a list of email addresses such that mails from these addresses are automatically blocked by the system.

Select **"Mail Security > Anti-Spam > Blacklist"** to view the list of restricted email addresses. You can modify or remove an address from the list by clicking the appropriate buttons in the **Configure** column.

Step 1: Click **[New Entry]** to add a new restricted email address.

Step 2: Enter the blacklist email address. You can either input the entire email address (such as "email@emaildomain.com") or use the wildcard character "*". For example "*yahoo*" will represent all email addresses containing the word "yahoo".

Step 3: In the **Direction** field, select whether the email address is to correspond to the mail's sending email ("from") or recipient email ("To").

Step 4: Lastly, enable or disable **Auto-Training** for the system to automatically learn that mails with this email address are classified as "spam" mail. Auto-training will take place at the scheduled time daily. Please refer to section "11.5.6 Automatic System Spam Mail Training" for details.

Step 5: Click **[OK]** to add the new blacklisted email address.

Export Blacklist to Client

You can save the system's email blacklist to a file stored locally. Click **[Download]** to export the list.

Import Blacklist from Client

Step 1: To import a list of email addresses from a local file into the SifoWorks U-series system, click **[Browse…]** and select the file to upload.

Step 2: Click **[OK]** to begin the import.

Note: *The email whitelist is of higher priority than the email blacklist. This means that if the same email address is present in both the whitelist and blacklist, mails from this address will be classified as "ham" mail.*

Application Example

Objective – Using SifoWorks as the gateway, mail server in DMZ, transparent routing mode; filter mails according to the whitelist and blacklist

Step 1: **Add a DMZ address object**

Step 1.1: Select "**Interface > DMZ**" and enable "Transparent Routing" mode.

Step 1.2: Select "**Policy Object > Address > DMZ**".

Step 1.3: Click **[New Entry]** and add a new DMZ address object with the following parameters:

Name: Mail_Server

IP: 61.11.11.12

Netmask: 255.255.255.255

Step 1.4: Click **[OK]** to save the new DMZ object.

Step 2: **Add a mail service group**

Step 2.1: Select "**Policy Object > Service > Group**".

Step 2.2: Click **[New Entry]** to add a new service group with the Name Mail_Svc_1.

Step 2.3: Select the services "POP3" and "SMTP" and click [Add>>] to add these services as members of the group.

Step 2.4: Click **[OK]** to save the configuration.

Step 2.5: Repeat steps 4.2 to 4.4 to add another service group ("Mail_Svc_2") with the services "POP3", "SMTP" and "DNS".

Step 3: **Add a WAN to DMZ policy**

Step 3.1: Select "**Policy > WAN to DMZ**".

Step 3.2: Click **[New Entry]** to add a new WAN to DMZ policy with the following configurations:

Source IP: Outside_Any

Destination IP: Mail_Server

Service: Mail_Svc_1

Action: Permit

Step 3.3: Click **[OK]** to save the new policy.

Step 4: **Add a DMZ to WAN policy**

Step 4.1: Select "**Policy > DMZ to WAN**".

Step 4.2: Click **[New Entry]** to add a new DMZ to WAN policy with the following configurations:

Source IP: Mail_Server

Destination IP: Outside_Any

Service: Mail_Svc_2

Action: Permit

Step 4.3: Click **[OK]** to save the new policy.

Step 5: **Configure the mail relay**

Step 5.1: Select "**Mail Security > Configure > Mail Relay**".

Step 5.2: Click **[New Entry]** to add a new mail relay with the following parameters

Domain name of internal mail server

Domain name of mail server: o2micro.com

IP address of mail server: 61.11.11.12

Step 5.3: Click **[OK]** to save the new mail relay.

Step 6: **Configure the Anti-Spam settings**

Step 6.1: Select "**Mail Security > Anti-Spam > Setting**".

Step 6.2: **Enable Anti-spam** and configure the parameters accordingly.

Step 6.3: Click **[OK]** to save the configuration.

Step 7: **Add Whitelist addresses**

Step 7.1: Select "**Mail Security > Anti-Spam > Whitelist**".

Step 7.2: Click **[New Entry]** to add a new email address to the white list with the following parameters

Whitelist: share2k01@yahoo.com

Direction: From

Step 7.3: Enable **Auto-training**.

Step 7.4: Click **[OK]** to save the new whitelist address.

Step 7.5: Repeat steps 7.2 to 7.4 to add more white list email addresses.

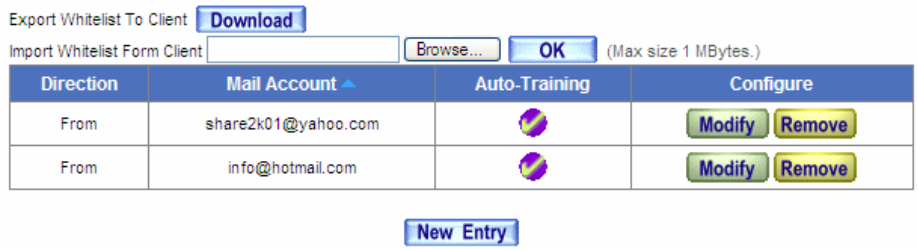


Figure 11.11

Step 8: **Add Blacklist addresses**

Step 8.1: Select "**Mail Security > Anti-Spam > Blacklist**".

Step 8.2: Click **[New Entry]** to add a new email address to the blacklist with the following parameters

Blacklist: *yahoo*

Direction: From

Step 8.3: Enable **Auto-training**.

Step 8.4: Click **[OK]** to save the new blacklist address.

Step 8.5: Repeat steps 7.2 to 7.4 to add more blacklist email addresses.

Results of Configuration

The addresses in the whitelist and blacklist are now used to check for spam mails. All addresses in the whitelist will be allowed while all addresses in the blacklist will be classified as spam.

Note that the whitelist priority is higher than the blacklist.

For example, when an external yahoo account (share2k01@yahoo.com) sends a mail to the internal mail server account, this mail will be classified as ham mail according to the whitelist even though it contains the string "yahoo".

However, if the sender account is share2k02@yahoo.com, the mail will be classified as spam according to the blacklist and stored in quarantine.

Administrators can view all detected spam mails from **"Mail Security > Anti-Spam > Spam Mails"**. Please refer to section "11.5.7 Spam Mail Log List" for details.

11.5.6 Automatic System Spam Mail Training

You can set up such that the system can learn from the mails that have been detected as spam or ham previously. Select **"Mail Security > Anti-Spam > Training"** to configure the settings for system spam training.

The top part of the interface displays the training statistics including the number of spam and ham mails in the system available for training.

The remaining portion of the interface consists of the training parameters you can configure.

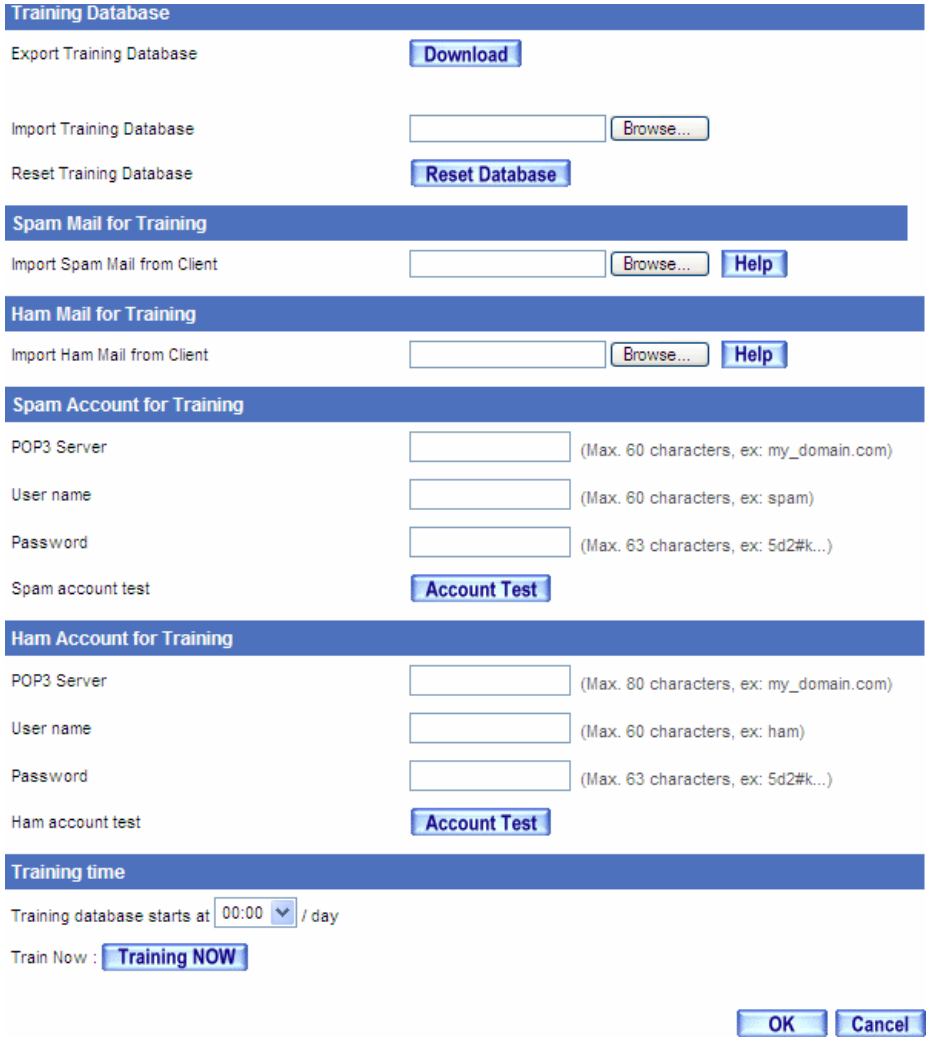


Figure 11.12

Training Database

Click **[Download]** to export the system's training database into a file for local storage.

Click **[Browse…]** and select a database file to import into the system.

Click **[Reset Database]** to reset the system database.

Spam Mail for Training

Import a file containing a spam mail that was erroneously judged as non-spam. This trains the system to recognize the mail as spam mail in future. Click **[Help]** to view an explanation on creating this file from the “Outlook” mail client.

Ham Mail for Training

Import a file containing a ham mail that was erroneously judged as spam mail. This trains the system to recognize the mail as ham mail in future. Click **[Help]** to view an explanation on creating this file from the “Outlook” mail client.

Note that the training files to be imported can be any data file type as long as it is in ASCII.

Spam Account for Training

The system can be trained to recognize all mails present in a particular mail account as spam.

Configure the account’s **POP3 Server** domain name, **User Name** and **Password**. You can click **[Account Test]** to test the connectivity between the system and the configured account.

Ham Account for Training

The system can be trained to recognize all mails in a particular mail account as ham mails.

Configure the account’s **POP3 Server** domain name, **User Name** and **Password**. You can click **[Account Test]** to test the connectivity between the system and the configured account.

Training Time

Here, you can set up a daily schedule for automatic learning to take place in the system. Select the time to begin training the system using the **Training database** each **day**.

You can also click **[Training NOW]** to manually begin the system training immediately.

Click **[OK]** to save the configurations made above and begin importing the selected files if any.

Note: *If the training file was exported from an email client software, please close the e-mail client before importing the file.*

Application Example 1

Objective – Using spam mail training to improve Bayesian filtering

In this example, we use outlook express as an example of an email client.

Step 1: **Identify the spam mails**

Step 1.1: On outlook express, create a new folder called "SpamMail"

Step 1.2: From the "Inbox" folder, select all spam mails.

Step 1.3: Right-click on the selected mails and select the option **"Move to Folder"**.

Step 1.4: In the dialog box that appears, select the "SpamMail" folder and click **[OK]** to move all selected spam mails into this folder.

Step 2: **Determine the SpamMail folder path to be used for import into the SifoWorks system**

Step 2.1: On outlook express, select the "SpamMail" folder and choose **"File > Compact"** from the top menu bar.

Step 2.2: Right-click on the "SpamMail" folder and select **"Properties"**

Step 2.3: Copy the folder's saved path.

Step 3: **Import the folder into SifoWorks for training**

Step 3.1: Select "**Mail Security > Anti-Spam > Training"**.

Step 3.2: In the *Spam Mail for Training* portion of the interface, paste the "SpamMail" folder path copied in the previous step.

Step 3.3: Click **[OK]** to import the folder into SifoWorks.

Results of Configuration

During the next specified training time, the system will be trained to identify the mails in the imported folder as spam mails.

Application Example 2

Objective – Using non-spam (ham) mail training to improve Bayesian filtering

In this example, we use outlook express as an example of an email client.

Step 1: **Identify the ham mails**

Step 1.1: On outlook express, create a new folder called "HamMail"

Step 1.2: From the "Inbox" folder, select all ham mails.

Step 1.3: Right-click on the selected mails and select the option **"Move to Folder"**.

Step 1.4: In the dialog box that appears, select the "HamMail" folder and click **[OK]** to move all selected ham mails into this folder.

Step 2: **Determine the HamMail folder path to be used for import into the SifoWorks system**

Step 2.1: On outlook express, select the "HamMail" folder and choose **"File > Compact"** from the top menu bar.

Step 2.2: Right-click on the "HamMail" folder and select **"Properties"**

Step 2.3: Copy the folder's saved path.

Step 3: **Import the folder into SifoWorks for training**

Step 3.1: Select "**Mail Security > Anti-Spam > Training"**.

Step 3.2: In the *Ham Mail for Training* portion of the interface, paste the "HamMail" folder path copied in the previous step.

Step 3.3: Click **[OK]** to import the folder into SifoWorks.

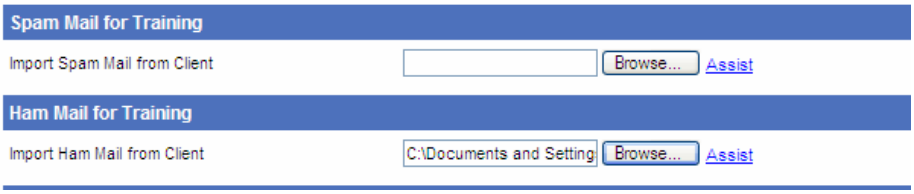


Figure 11.13

Results of Configuration

During the next specified training time, the system will be trained to identify the mails in the imported folder as ham mails.

Application Example 3

Objective – Using spam mail account training to improve Bayesian filtering

Step 1: **Set up the mail relay**

Select **"Mail Security > Configure > Mail Relay"** and set up the mail server accordingly.

Step 2: **Set up the spam mail account**

Select **"Mail Security > Configure > Mail Account"** and set up a spam mail account (spam@o2micro.com)

Step 3: **Set up the ham mail account**

Select **"Mail Security > Configure > Mail Account"** and set up a ham mail account (ham@o2micro.com).

Step 4: **Training configuration (Spam)**

Step 4.1: Select "**Mail Security > Anti-Spam > Training"**.

Step 4.2: In the *Spam Account for Training* portion of the interface, configure the following:

POP3 Server: o2micro.com

User Name: spam

Password: spam

Step 4.3: Click **[OK]** save the configuration.

Step 5: **Training configuration (Ham)**

Step 5.1: Select "**Mail Security > Anti-Spam > Training"**.

Step 5.2: In the *Ham Account for Training* portion of the interface, configure the following:

POP3 Server: o2micro.com

User Name: ham

Password: ham

Step 5.3: Click **[OK]** to save the configuration.

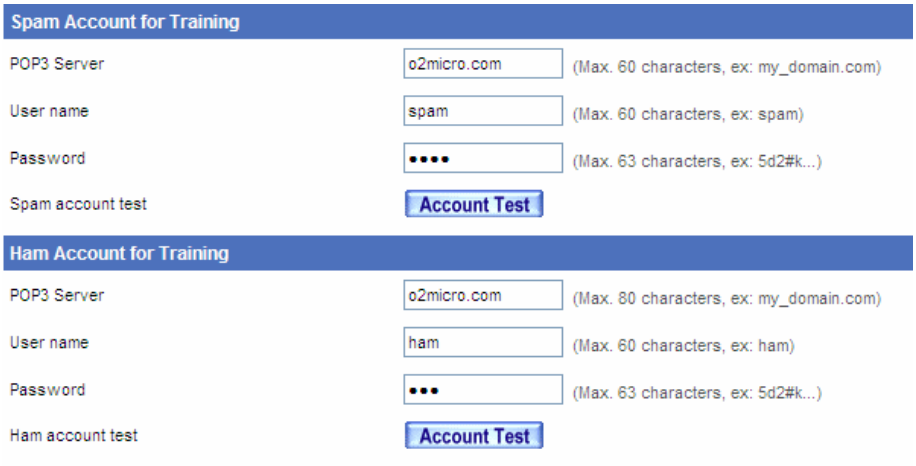


Figure 11.14

Step 6: **Identify spam / ham mails for training**

Step 6.1: In your mail client, select the spam mails to from your inbox.

Step 6.2: Select to forward these mails as attachment to the address spam@o2micro.com.

Step 6.3: In the inbox, now select the ham mails.

Step 6.4: Forward the selected mails as attachment to the address ham@o2micro.com.

Results of Configuration

During the next specified training time, the system will be trained to identify the mails received by the two email accounts as spam/ham mails respectively.

11.5.7 Spam Mail Log List

All spam mails detected will be logged in the system regardless of the action taken. Administrator can select **"Mail Security > Anti-Spam > Spam Mail"** to view the list of spam mails detected and logged in the system.

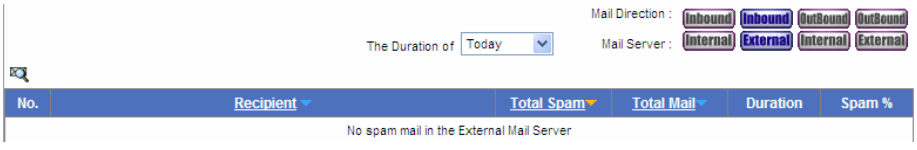


Figure 11.15

Step 1: The system separates the spam mail log for **[Inbound]** and **[Outbound]** mails for either **[Internal]** or **[External]** mail servers. Click the respective buttons on the top right corner of the list to view the respective log lists.

Note: *SifoWorks U100 only maintains spam mail logs for inbound mails.*

Step 2: From the top of the list, select to view mails received during specific time intervals.

Step 3: You can sort the list by **Recipient** email address, **Total Spam** mail and **Total Mail** scanned by clicking on the corresponding columns in the list. An orange arrow next to the column name indicates that the list is currently sorted by that column. A down arrow indicates the list is sorted in descending order while an up arrow indicates ascending order.

Searching for Specific Mails

Note: *The search function for spam mails is not available in the SifoWorks U100 device.*

Step 1: From the left corner of the list, click the icon to specify criterion used to search for specific mails on the list. These include:

1. Recipient address
2. Sender address
3. Email subject
4. Date and time of the mails
5. Spam/Ham mails
6. Whether the mails contain attachments

Step 2: Click **[Search]** to begin the search. The results of the search will be displayed in the list below.

View the sender addresses of all spam mails received by this recipient

Click the recipient name from the list to view the addresses of all senders of spam mail to this recipient.

View all spam mails from a specific sender

Click the sender's address from the list above. The interface will display the details of all spam mails sent from this sender including mail **subject**, **received time** and **mail size**.

Select quarantined mails for training

Select the non-spam mails from the list and click the training icon from the top of the list. The system will be trained to identify these mails as non-spam mails.

Retrieve quarantined mails

Select the mails to retrieve and click the retrieve icon from the top of the list.

Specify the **sender** and **recipient** of the retrieved mails and click **[OK]** to send the mails to the recipient.

11.6 Anti-Virus

SifoWorks U-series further incorporates a function to scan emails sent to the mail servers for viruses.

Select **"Mail Security > Anti-Virus > Setting"** to set up the anti-virus function's basic configurations.

Anti-Virus Setting

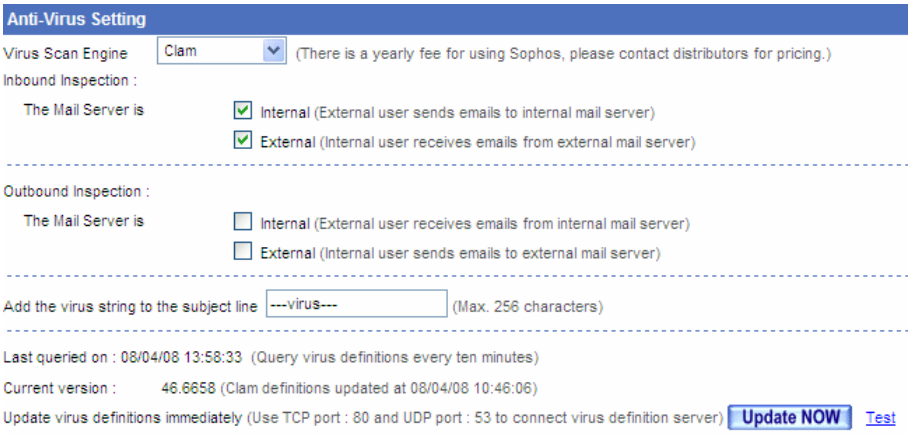

Anti-Virus Setting
Virus Scan Engine
Clam
(There is a yearly fee for using Sophos, please contact distributors for pricing.)
Inbound Inspection :
The Mail Server is
Internal (External user sends emails to internal mail server)
External (Internal user receives emails from external mail server)
Outbound Inspection :
The Mail Server is
Internal (External user receives emails from internal mail server)
External (Internal user sends emails to external mail server)
Add the virus string to the subject line
---virus---
(Max. 256 characters)
Last queried on : 08/04/08 13:58:33 (Query virus definitions every ten minutes)
Current version : 46.6658 (Clam definitions updated at 08/04/08 10:46:06)
Update virus definitions immediately (Use TCP port : 80 and UDP port : 53 to connect virus definition server)
Update NOW
Test

Figure 11.16

In this part of the interface, set up the basic settings for the anti-virus function.

Step 1: Select the **Virus Scan Engine** to be used and whether the **Mail Servers** are internal and/or external. SifoWorks U-series anti-virus scan can be used on inbound and outbound mails from both internal (LAN and DMZ) or external (WAN) mail servers.

Note: *You can only enable anti-virus scan on inbound mails for SifoWorks U100, U200, U200A, U210 and U210A devices.*

Step 2: Enter the message to be added to the **subject line** of the virus mails detected.

The time the system's virus definitions were last **updated** is also displayed along with the time interval between each update. The current virus definition file **version** is also displayed.

Click **[Update NOW]** to update the system's virus definitions immediately. Click **[Test]** to perform a connectivity test between the system and the update server.

Action of Inbound Infected Mail

Here, set up the action to be performed on inbound infected mails that are detected by the system.

Step 1: For **Internal Mail Servers**, you can choose to **Delete the virus mail**, **Deliver** the original virus mail to the recipient, **Deliver a notification mail instead of the original virus mail** to the recipient, **Forward** the virus mail to the specified email address or **Quarantine** the virus mail. Note that you cannot select to quarantine mails on SifoWorks U100 devices.

Step 2: For **External Mail Servers**, you can only choose to **Deliver a notification mail instead of the original virus mail** to the recipient or **Deliver the original virus mail** to the recipient and/or **Quarantine** the mail. Note that you cannot select to quarantine mails on SifoWorks U100 devices.

Action of Outbound Infected Mail

Note: *This configuration is not available for SifoWorks U100, U200 and U210 devices.*

Here, set up the action to be performed on outbound infected mails that are detected by the system.

Step 1: For **Internal Mail Servers**, you can only choose to **Deliver a notification mail instead of the original virus mail** to the recipient or **Deliver the original virus mail** to the recipient and/or **Quarantine** the mail.

Step 2: For **External Mail Servers**, you can choose to **Delete the virus mail**, **Deliver** the original virus mail to the recipient, **Deliver a notification mail instead of the original virus mail** to the recipient, **Forward** the virus mail to the specified email address or **Quarantine** the virus mail.

Step 3: Click **[OK]** to save the configurations.

Application Example 1

Objective – To detect virus infected mails on the mail server

Step 1: **Allow LAN users to receive mails from the external mail server**

Set the IP address of the network adaptor to correspond to the external DNS server.

Step 2: **Allow WAN users to receive mail from the internal mail server**

Mail server is in DMZ. Server name is o2micro.com.

Step 2.1: Select "**Interface > WAN**"

Step 2.2: Modify the WAN1 port such that the **IP address** is 61.11.11.12 and the DNS address corresponds to the external DNS server.

Step 3: **Add a DMZ address object**

Step 3.1: Select "**Policy Object > Address > DMZ**".

Step 3.2: Click **[New Entry]** to add a new DMZ address object with the following configurations:

Name: Mail_Server

IP Address: 61.11.11.12

Netmask: 255.255.255.255

Step 3.3: Click **[OK]** to save the configuration.

Step 4: **Add a mail service group**

Step 4.1: Select "**Policy Object > Service > Group**".

Step 4.2: Click **[New Entry]** to add a new service group with the Name Mail_Svc_1.

Step 4.3: Select the services "POP3" and "SMTP" and click [Add>>] to add these services as members of the group.

Step 4.4: Click **[OK]** to save the configuration.

Step 4.5: Repeat steps 4.2 to 4.4 to add another service group ("Mail_Svc_2") with the services "POP3", "SMTP" and "DNS".

Step 5: **Add a outgoing policy**

Step 5.1: Select "**Policy > Outgoing**".

Step 5.2: Click **[New Entry]** to add an outgoing policy with the following configurations:

Source IP: Inside_Any

Destination IP: Outside_Any

Service: Mail_Svc_2

Action, WAN Port: Permit All

Step 5.3: Click **[OK]** to save the new policy.

Step 6: **Add a WAN to DMZ policy**

Step 6.1: Select "**Policy > WAN to DMZ**".

Step 6.2: Click **[New Entry]** to add a new WAN to DMZ policy with the following configurations:

Source IP: Outside_Any

Destination IP: Mail_Server

Service: Mail_Svc_1

Action: Permit

Step 6.3: Click **[OK]** to save the new policy.

Step 7: **Add a DMZ to WAN policy**

Step 7.1: Select "**Policy > DMZ to WAN**".

Step 7.2: Click **[New Entry]** to add a new DMZ to WAN policy with the following configurations:

Source IP: Mail_Server

Destination IP: Outside_Any

Service: Mail_Svc_2

Action: Permit

Step 7.3: Click **[OK]** to save the new policy.

Step 8: **Configure the Anti-Virus settings**

Step 8.1: Select "**Mail Security > Anti-Virus > Setting**".

Step 8.2: Configure the parameters as shown in the figure below.

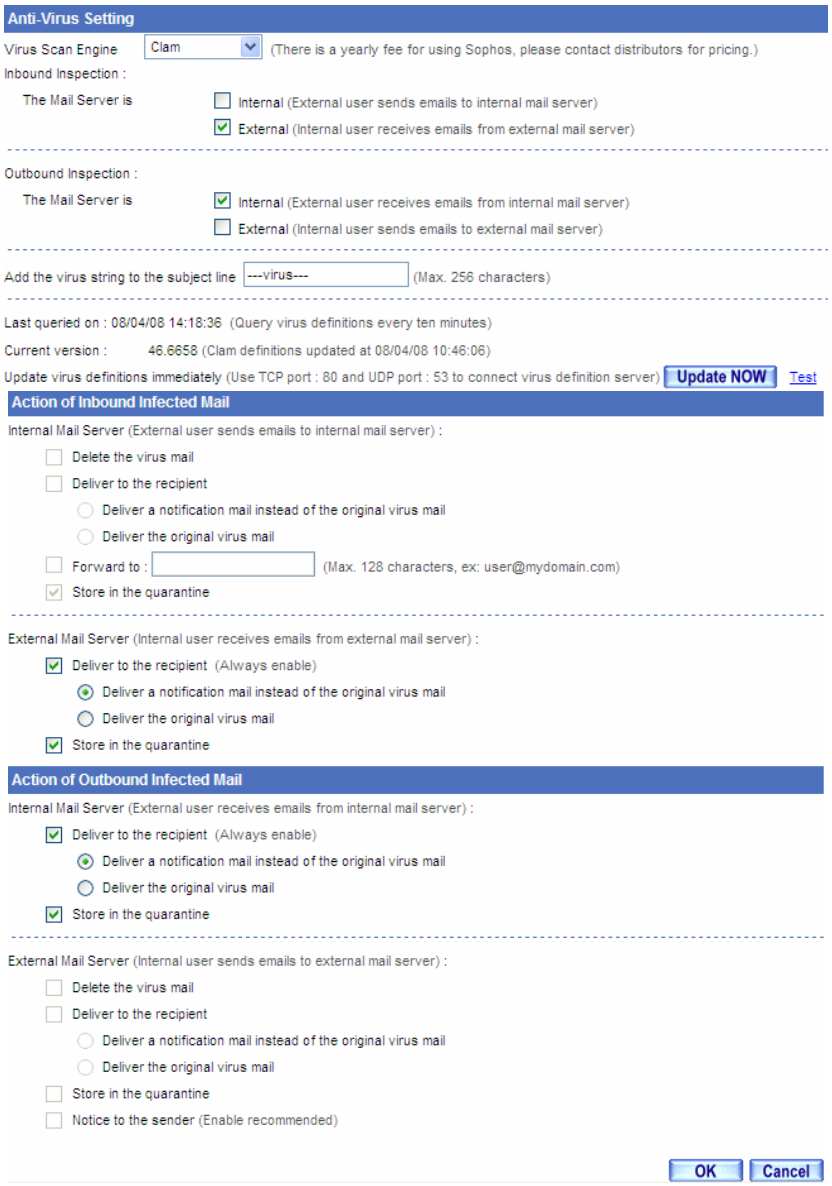

Anti-Virus Setting
Virus Scan Engine
Clam
(There is a yearly fee for using Sophos, please contact distributors for pricing.)
Inbound Inspection :
The Mail Server is
Internal (External user sends emails to internal mail server)
External (Internal user receives emails from external mail server)
Outbound Inspection :
The Mail Server is
Internal (External user receives emails from internal mail server)
External (Internal user sends emails to external mail server)
Add the virus string to the subject line
---virus---
(Max. 256 characters)
Last queried on : 08/04/08 14:18:36 (Query virus definitions every ten minutes)
Current version : 46.6658 (Clam definitions updated at 08/04/08 10:46:06)
Update virus definitions immediately (Use TCP port : 80 and UDP port : 53 to connect virus definition server)
Update NOW
Test
Action of Inbound Infected Mail
Internal Mail Server (External user sends emails to internal mail server) :
Delete the virus mail
Deliver to the recipient
Deliver a notification mail instead of the original virus mail
Deliver the original virus mail
Forward to :
(Max. 128 characters, ex: user@mydomain.com)
Store in the quarantine
External Mail Server (Internal user receives emails from external mail server) :
Deliver to the recipient (Always enable)
Deliver a notification mail instead of the original virus mail
Deliver the original virus mail
Store in the quarantine
Action of Outbound Infected Mail
Internal Mail Server (External user receives emails from internal mail server) :
Deliver to the recipient (Always enable)
Deliver a notification mail instead of the original virus mail
Deliver the original virus mail
Store in the quarantine
External Mail Server (Internal user sends emails to external mail server) :
Delete the virus mail
Deliver to the recipient
Deliver a notification mail instead of the original virus mail
Deliver the original virus mail
Store in the quarantine
Notice to the sender (Enable recommended)
OK
Cancel

Figure 11.17

Step 8.3: Click **[OK]** to save the configuration.

Results of Configuration

Inbound and outbound mails received by users on the internal mail server or the external mail server are now checked for viruses.

Administrators can check the list of detected virus mails from the **"Mail Security > Anti-Virus > Virus Mails"** log list. Please refer to section "11.6.1 Virus Mail Log List" for details.

Application Example 2

Objective – To detect virus infected mails on internal and external mail servers using SifoWorks as the gateway; mail server is in LAN, NAT mode

WAN1 IP address of SifoWorks: 61.11.11.12; SifoWorks LAN segment 192.168.2/24

Step 1: **Add a LAN address object**

Step 1.1: Select "**Policy Object > Address > LAN**".

Step 1.2: Click **[New Entry]** to add a new LAN address object with the following configurations:

Name: Mail_Server

IP Address: 192.168.2.12

Netmask: 255.255.255.255

Step 1.3: Click **[OK]** to save the configuration.

Step 2: **Add a mail service group**

Step 2.1: Select "**Policy Object > Service > Group**".

Step 2.2: Click **[New Entry]** to add a new service group with the Name Mail_Svc_1.

Step 2.3: Select the services "POP3" and "SMTP" and click **[Add>>]** to add these services as members of the group.

Step 2.4: Click **[OK]** to save the configuration.

Step 2.5: Repeat steps 4.2 to 4.4 to add another service group ("Mail_Svc_2") with the services "POP3", "SMTP" and "DNS".

Step 3: **Add a virtual server**

Step 3.1: Select "**Policy Object > Virtual Server > Server 2**".

Step 3.2: Configure the **virtual server IP** address as 61.11.11.12.

Step 3.3: Click **[New Entry]** and add the virtual server with the following configurations:

Service: Mail_Svc_1

Server Virtual IP 1: 192.168.2.12

Step 3.4: Click **[OK]** to save the configuration.

Step 4: **Add an incoming policy**

Step 4.1: Select "**Policy > Incoming**".

Step 4.2: Click **[New Entry]** to add an incoming policy with the following configurations:

Source IP: Outside_Any

Destination IP: Virtual Server 2

Service: Mail_Svc_1

Action, WAN Port: Permit

Step 4.3: Click **[OK]** to save the new policy.

Step 5: **Add a outgoing policy**

Step 5.1: Select "**Policy > Outgoing**".

Step 5.2: Click **[New Entry]** to add an outgoing policy with the following configurations:

Source IP: Mail_Server

Destination IP: Outside_Any

Service: Mail_Svc_2

Action, WAN Port: Permit All

Step 5.3: Click **[OK]** to save the new policy.

Step 6: **Set up the mail relay**

Select **"Mail Security > Configure > Mail Relay"** and set up the mail server accordingly.

Step 7: **Configure the Anti-Virus settings**

Step 7.1: Select "**Mail Security > Anti-Virus > Setting**".

Step 7.2: Configure the parameters accordingly.

Step 7.3: Click **[OK]** to save the configuration.

Results of Configuration

Inbound and outbound mails received by users on the internal mail server or the external mail server are now checked for viruses.

Administrators can check the list of detected virus mails from the **"Mail Security > Anti-Virus > Virus Mails"** log list. Please refer to section "11.6.1 Virus Mail Log List" for details.

11.6.1 Virus Mail Log List

All virus mails detected will be logged in the system regardless of the action taken. Administrator can select **"Mail Security > Anti-Virus > Virus Mail"** to view the list of virus mails detected and logged in the system.

Step 1: The system separates the virus mail log for **[Inbound]** and **[Outbound]** mails on the **[Internal]** mail servers or **[External]** mail servers. Click the respective buttons on the top right corner of the list to view the respective mail log list. Note that **[Outbound]** mail logs are not available for SifoWorks U100 devices.

Step 2: From the top of the list, select to view mails received during a particular duration. You can sort the list by **recipient** email address, **total virus** mail and **total mail** scanned by clicking on the corresponding columns in the list. An orange arrow next to the column name indicates that the list is currently sorted by that column. A down arrow indicates the list is sorted in descending order while an up arrow indicates ascending order.

Searching for Specific Mails

Note: *The log search function for virus mails is not available in the SifoWorks U100 device.*

Step 1: From the left corner of the list, click the icon to specify the criterion used to search for specific mails on the list. These include:

1. Recipient address
2. Sender address
3. Email subject
4. Virus name
5. Date and time of the mails
6. Virus/Non-virus mails
7. Whether the mails contain attachments or not

Step 2: Click **[Search]** to begin the search. The results of the search will be displayed in the list below.

Tip: *SifoWorks' anti-virus and anti-spam functions are enabled by default. The system can scan for virus and spam mails based on default settings without any administrator configuration.*

View the sender addresses of all virus mails received by this recipient

Click the recipient name from the list to view the addresses of all senders of virus mail to this recipient.

View all virus mails from a specific sender

Click the sender's address from the list above. The interface will display the details of all virus mails sent from this sender including mail **subject**, **received time** and **mail size**.

11.7 Mail Report

Note: *This function is not available for SifoWorks U100 devices.*

SifoWorks generates an overall log and statistics of the spam/virus mails detected by the system.

11.7.1 Settings

Select **"Mail Security > Mail Report > Setting"** to set up the system to send periodic history reports via email to the accounts configured in **"System > Configure > Setting"**. Please refer to section "2.1.2 Email Alert Notification Settings" for information on setting up email alert notification. Reports are sent in PDF format attached in the email.

Periodic Reports

Step 1: **Enable sending periodic report**.

Step 2: Select the type of reports to be sent via email.

Step 3: Click **[OK]** to save the configuration.

The system will send reports based on the specified time period. For example, select **Weekly report** to send a report for the previous week at 00:00 hour on the first day of each week.

History Reports

Select the type of report and the corresponding date. Click **[Mail Report]** to send the selected report immediately.

11.7.2 Mail Statistics

Select **"Mail Security > Mail Report > Statistics"** from the menu to view the overall mail statistics report. You can choose to view the daily, weekly, monthly or yearly reports by clicking on the appropriate buttons on the top left corner of the interface.

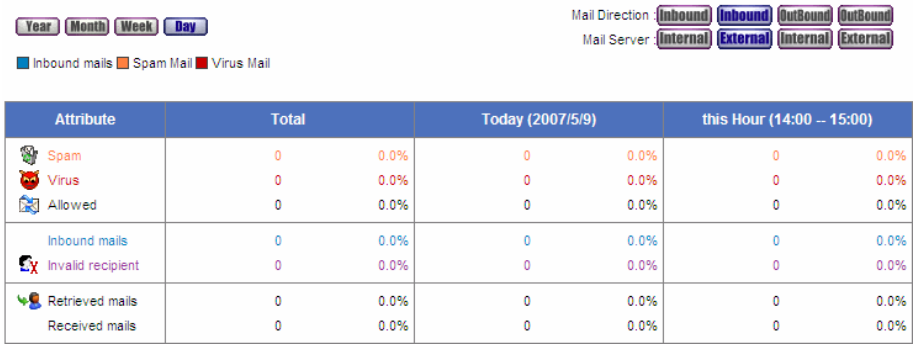

Year
Month
Week
Day
Mail Direction : Inbound Inbound OutBound OutBound
Mail Server : Internal External Internal External
Inbound mails
Spam Mail
Virus Mail
Attribute
Total
Today (2007/5/9)
this Hour (14:00 -- 15:00)
Spam 0 0.0% 0 0.0% 0 0.0%
Virus 0 0.0% 0 0.0% 0 0.0%
Allowed 0 0.0% 0 0.0% 0 0.0%
Inbound mails 0 0.0% 0 0.0% 0 0.0%
Invalid recipient 0 0.0% 0 0.0% 0 0.0%
Retrieved mails 0 0.0% 0 0.0% 0 0.0%
Received mails 0 0.0% 0 0.0% 0 0.0%

Figure 11.18

The system separates the mail statistics reports for **[Inbound]** and **[Outbound]** mails on the **[Internal]** mail servers or **[External]** mail servers. Click the respective buttons on the top right corner of the list to view the respective report.

The report includes an overall table listing the actual figures and 4 charts displaying the number of spam/virus mail over time and the top 10 spam/virus recipients.

11.7.3 Mail Log

Select **"Mail Security > Mail Report > Log"** to view the overall logged records.

Step 1: The system separates the mail log for **[Inbound]** and **[Outbound]** mails on the **[Internal]** mail servers or **[External]** mail servers. Click the respective buttons on the top right corner of the list to view the respective mail log.

Step 2: You can sort the report according to each column by clicking on the column name. An orange arrow represents that the report is currently being sorted according to that column. An up arrow indicates ascending order while a down arrow indicates descending order.

The **Attribute** column displays information on the type of mail. The icons include

Allowed

Spam

Virus

Unscanned

Invalid Recipient

The **Action** column displays information on the action performed on the mails by the system. The icons include:

Delete

Deliver

Forward

Store

Retrieved

Check the checkbox to select the corresponding mails and click the icon to retrieve the selected mails.

Searching for Specific Mails

Step 1: From the left corner of the list, click the icon to specify criteria used to search for specific mails on the list. The criteria include:

1. Recipient address
2. Sender address
3. Email subject
4. IP address
5. Date and time of the mails
6. Attribute (virus, spam etc) of the mail
7. Action taken on the mail
8. Whether the mails contain attachments or not

Step 2: Click **[Search]** to begin the search. The results of the search will be displayed in the list below.

Chapter

12

Mail Archive and Audit

SifoWorks U-series provides an additional function, archiving and auditing all mails transmitted through the system based on administrator specified settings.

Note: *This function group is not available for SifoWorks U100, U200 and U210 devices.*

12.1 Mail Archive and Audit Settings

Select **"Mail Archive / Audit > Setting"** from the left menu. The current settings for this function are displayed in the interface to the right. Here you can configure the duration for which archived mails are kept in the system.

Mail Archive / Audit Storage Setting

Specify the number of **days** the archived mails will be kept in the system for **inbound** mails and **outbound** mails separately.

Mails that have been archived for more than this number of days will be removed from the system.

Mail Archive Setting

Step 1: For **Inbound Mail Archive**, select whether the **mail server is placed** internally or externally.

Step 2: For **Outbound Mail Archive**, select whether the **mail server is placed** internally or externally.

Step 3: Specify the **email address** used to retrieve the archived mails.

Mail Delay Setting

Select the time at which mails will be sent. Sending of all mails to their respective recipients will be delayed until this time daily.

12.2 Mail Audit Rules

SifoWorks determines which mails to archive according to the audit rules. Select **"Mail Archive/Audit > Audit"** to view a list of all audit rules already defined in the system.

You can **modify** or **remove** a rule by clicking on the appropriate buttons in the **configure** column corresponding to the rule.

12.2.1 Add a New Audit Rule

Step 1: Click **[New Entry]** to add a new audit rule.

Figure 12.1

Step 2: Enter the **rule name** and **comments** if any.

Step 3: Select to **archive mails** that fulfils the conditions set in this rule. If this is unselected, mails that match the conditions set in this rule will not be archived.

Step 4: Select the **action** to take on the mails matching the rule. If the action "forward to" is selected, you must also enter the email address to forward the mail to in the adjacent textbox.

Within a single rule, you can add multiple matching patterns. The list below displays the criteria that are matched to mails by this rule.

Step 5: Specify the **item** of the mail to check and the **pattern** to check against. Select the **condition** of the check and click **[Next Row]** to add the new criteria into the list. Note that the **conditions** available for selection differ according to the check **item**.

Step 6: Click **[Remove]** to delete a criteria from the list.

Step 7: When "And" is selected in the **combination** field, only mails matching every criterion in the list will match this rule. If "Or" is selected, a mail matches the rule as long as it fulfils one of the criteria in the list.

Step 8: Click **[OK]** to add this rule to the list.

12.2.2 Modifying Audit Rules Priority

SifoWorks matches mails to rules in a top down fashion on the list. That is, if when a mail is received by SifoWorks, the system will check the mail against the first audit rule. If the mail matches the first rule, the action specified in that rule will be performed on the mail and the check stops.

If the mail does not match the first rule, the system will continue checking the mail against the second rule and so on.

Figure 12.2

In the audit rule list, you can change the priority of the rules listed by selecting the appropriate priority from the drop down menu in the **move** column corresponding to the rule.

When the administrator changes a rule priority, the system will automatically change the priority of all affected rules accordingly and refresh the list.

For example, in figure 12.2 above, if the priority of “Rule_B” is changed to “1”, the system will automatically shift “Rule_B” up to the first position in the list and change the priority of “Rule_A” to “2” as shown in the figure below:

Figure 12.3

Application Example

Objective – To audit inbound and outbound mails via the SifoWorks gateway

Mail server is in DMZ, transparent routing mode.

Step 1: **Add a DMZ address object**

Step 1.1: Select "**Interface > DMZ**" and enable "Transparent Routing" mode.

Step 1.2: Select "**Policy Object > Address > DMZ**".

Step 1.3: Click **[New Entry]** and add a new DMZ address object with the following parameters:

Name: Mail_Server

IP: 61.11.11.12

Netmask: 255.255.255.255

Step 1.4: Click **[OK]** to save the new DMZ object.

Step 2: **Add a mail service group**

Step 2.1: Select "**Policy Object > Service > Group**".

Step 2.2: Click **[New Entry]** to add a new service group with the Name Mail_Svc_1.

Step 2.3: Select the services "POP3" and "SMTP" and click **[Add>>]** to add these services as members of the group.

Step 2.4: Click **[OK]** to save the configuration.

Step 2.5: Repeat steps 4.2 to 4.4 to add another service group ("Mail_Svc_2") with the services "POP3", "SMTP" and "DNS".

Step 3: **Add a WAN to DMZ policy**

Step 3.1: Select "**Policy > WAN to DMZ**".

Step 3.2: Click **[New Entry]** to add a new WAN to DMZ policy with the following configurations:

Source IP: Outside_Any

Destination IP: Mail_Server

Service: Mail_Svc_1

Action: Permit

Step 3.3: Click **[OK]** to save the new policy.

Step 4: **Add a DMZ to WAN policy**

Step 4.1: Select "**Policy > DMZ to WAN**".

Step 4.2: Click **[New Entry]** to add a new DMZ to WAN policy with the following configurations:

Source IP: Mail_Server

Destination IP: Outside_Any

Service: Mail_Svc_2

Action: Permit

Step 4.3: Click **[OK]** to save the new policy.

Step 5: **Set up the mail relay**

Select **"Mail Security > Configure > Mail Relay"** and set up the mail server accordingly.

Step 6: **Configure the Archive / Audit storage settings**

Step 6.1: Select "**Mail Archive / Audit > Setting**" and configure the parameters according to the figure below:

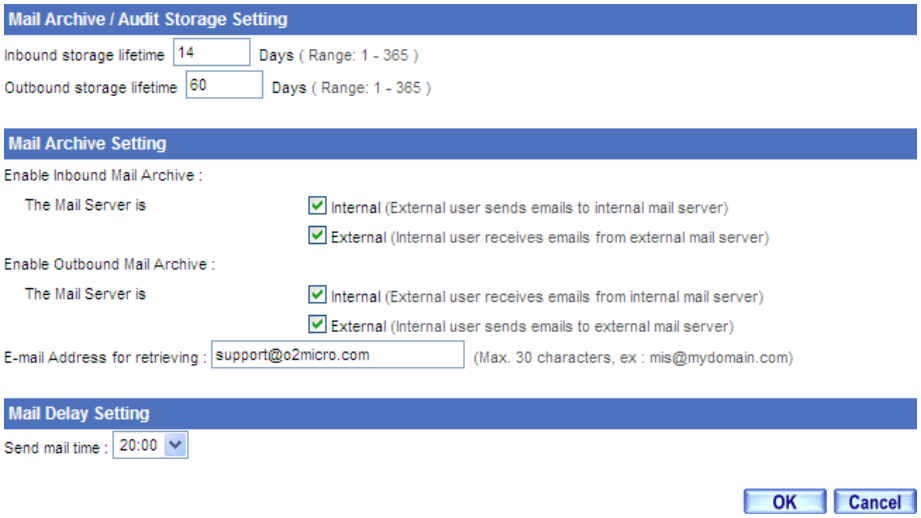

Mail Archive / Audit Storage Setting
Inbound storage lifetime 14 Days (Range: 1 - 365)
Outbound storage lifetime 60 Days (Range: 1 - 365)
Mail Archive Setting
Enable Inbound Mail Archive :
The Mail Server is
Internal (External user sends emails to internal mail server)
External (Internal user receives emails from external mail server)
Enable Outbound Mail Archive :
The Mail Server is
Internal (External user receives emails from internal mail server)
External (Internal user sends emails to external mail server)
E-mail Address for retrieving : support@o2micro.com (Max. 30 characters, ex : mis@mydomain.com)
Mail Delay Setting
Send mail time : 20:00
OK
Cancel

Figure 12.4

Step 6.2: Click **[OK]** to save the configuration.

Step 7: **Configure the audit rules for mails to be delivered**

Step 7.1: Select "**Mail Archive / Audit > Audit**".

Step 7.2: Click **[New Entry]** to add a new audit rule with the following configuration:

Rule Name: Mail_Delivery

Comment: Deliver mail to user

Combination: Or

Action: Pass

Step 7.3: Enable **Archive mail**.

Step 7.4: In the list below, select "From" for **Item**, "Contains" for **condition** and enter "share2k01" for pattern.

Step 7.5: Click **[Next Row]**.

Step 7.6: Repeat steps 7.4 to 7.5 to add more matching patterns into this rule.

Step 7.7: Click **[OK]** to save the new rule.

Step 8: **Configure the audit rules for mails to be deleted**

Step 8.1: Select "**Mail Archive / Audit > Audit**".

Step 8.2: Click **[New Entry]** to add a new audit rule with the following configuration:

Rule Name: Mail_Deletion

Comment: Delete mail

Combination: Or

Action: Delete

Step 8.3: Enable **Archive mail**.

Step 8.4: In the list below, select "From" for **Item**, "Contains" for **condition** and enter "yahoo" for pattern.

Step 8.5: Click **[Next Row]**.

Step 8.6: Repeat steps 7.4 to 7.5 to add more matching patterns into this rule.

Step 8.7: Click **[OK]** to save the new rule.

Figure 12.5

Results of Configuration

Inbound and outbound mails received by users on the internal mail server or the external mail server are now sent or deleted according to the audit rules set above.

Note that audit rules are matched against mails in a top down fashion according to the order displayed on the list.

All sent/deleted mails will be archived in the archive log list. Please refer to section "12.3 Archived Mails" for details.

12.3 Archived Mails

Select **"Mail Archive/Audit > Archive"** to view all archived mails kept in the system.

Step 1: The system separates the mails for **[Inbound]** and **[Outbound]** mails on the **[Internal]** mail servers or **[External]** mail servers. Click the respective buttons on the top right corner of the list to view the respective archived mails.

Step 2: You can sort the report according to each column by clicking on the column name. An orange arrow represents that the report is currently being sorted according to that column. An up arrow indicates ascending order while a down arrow indicates descending order.

The **Action** column displays the actions that have been performed on the archived mail:

Delete Pass Forward Inspect Delay Archive

Check the checkbox to select multiple mails from the list. From the top left corner, you can:

1. Click the icon to retrieve all selected mails
2. Click the icon to resend all selected mails to their respective recipients
3. Click the icon to remove all selected mails from the archive

Searching for Specific Mails

Step 1: From the left corner of the list, click the icon to specify the criteria used to search for specific mails on the list. These include:

1. Recipient address
2. Sender address
3. Email subject
4. Date and time of the mails
5. Action taken on the mail
6. Whether the mails contain attachments or not

Step 2: Click **[Search]** to begin the search. The results of the search will be displayed in the list below.

Chapter

13

Intrusion Detection and Prevention

Through SifoWorks' intrusion detection and prevention (IDP) function, administrator's can set up the system to detect and prevent attacks such as SYN attacks, on the network from both internal and external sources.

13.1 Basic IDP Settings

Select **"IDP > Configure > Setting"** to set up the basic configuration for the IDP function.

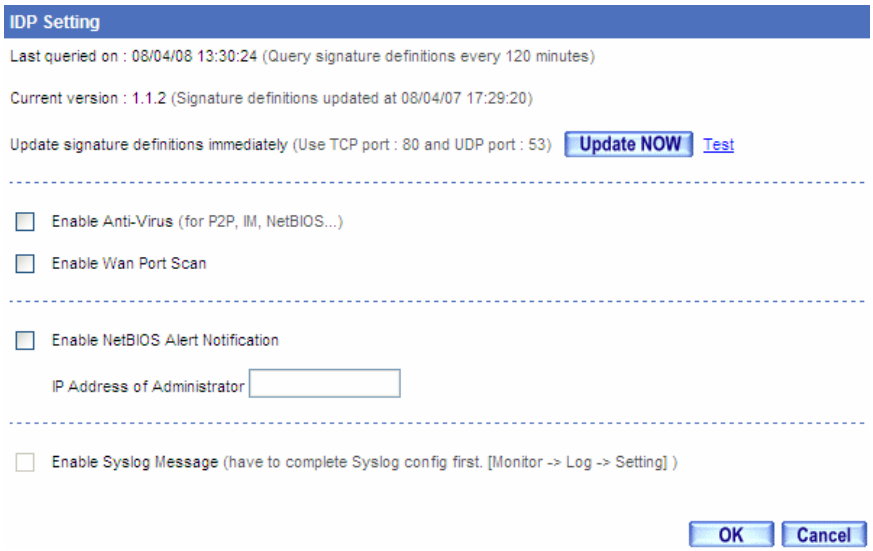

IDP Setting
Last queried on : 08/04/08 13:30:24 (Query signature definitions every 120 minutes)
Current version : 1.1.2 (Signature definitions updated at 08/04/07 17:29:20)
Update signature definitions immediately (Use TCP port : 80 and UDP port : 53)
Update NOW
Test
Enable Anti-Virus (for P2P, IM, NetBIOS...)
Enable Wan Port Scan
Enable NetBIOS Alert Notification
IP Address of Administrator
Enable Syslog Message (have to complete Syslog config first. [Monitor -> Log -> Setting])
OK
Cancel

Figure 13.1

The first part of the screen, as shown in the figure above, displays the information on the IDP signature **version** and last **Update** time. Click **[Update NOW]** to update the IDP signature definitions. Click **[Test]** to test the connectivity between SifoWorks and the update server.

Step 1: Select to **Enable Anti-Virus** checks for the various protocols. You can also select to **Enable Port Scan** to scan all traffic transmitted via the WAN interfaces. This allows the system to scan for attacks on the external ports.

Step 2: **Enable NetBIOS Alert Notification** when attacks are detected.

Step 3: Enter the **IP Address** of the administrator to notify.

Note: *SifoWorks U100 cannot be set up to send* ***NetBIOS alert notification****.*

Step 4: Select to enable the sending of IDP log records (**Enable Syslog Message**) to the syslog server configured in **"Monitor > Log > Setting"**. Please refer to section "16.1.1 Log Settings" for details on configuring the syslog server.

Step 5: Click **[OK]** to save the configuration.

Default action of all signatures

Step 1: In the bottom part of the screen, select the default action to perform on **high**, **medium** and **low risk** attack packets detected.

Step 2: Also select whether to **log** the information of the detected packets and to raise an **alarm** when attack packets of the corresponding risk level are detected. Note that you cannot select to raise an **alarm** on SifoWorks U100 devices.

Step 3: Click **[OK]** to save the configuration.

13.2 IDP Signatures

Select **"IDP > Signature"** to manage the IDP signatures used to detect whether a packet is an attack packet.

13.2.1 Traffic Anomalies

Select **"IDP > Signature > Anomaly"** to view a list of unusual network activity such as SYN flood, UDP flood etc. and the detection status of such anomalies.

Step 1: Click **[Modify]** corresponding to the anomaly to edit.

Step 2: For "SYN flood", "UDP flood" and "ICMP flood" attacks, you can select to **Enable** the detection for such attacks and specify the maximum **Threshold** of packets from the same source before a flood attack is detected.

Step 2.1: Enter the **Blocking Time** of the sending IP of the packets from which a flood is detected.

Step 2.2: Select the **Action** to perform on the packets and whether to **Log** the packets' information. Also select whether to raise an **Alarm** when such attacks are detected. Note that SifoWorks U100 devices do not support the **Alarm** option.

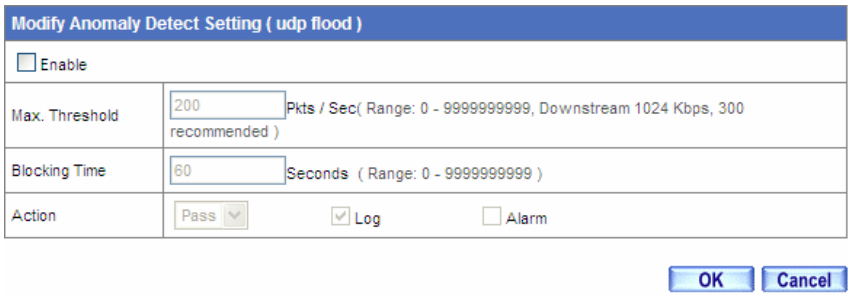


Figure 13.2

Step 3: For all other traffic anomalies, you can select whether to **Enable** the detection of such attacks.

Step 3.1: Select the **Action** to perform on the attack packets detected and whether to **Log** the packets' information.

Step 3.3: Select whether to raise an **Alarm** when such attacks are detected.

Step 4: Click **[OK]** to save the settings.

13.2.2 Pre-defined IDP Signatures

The SifoWorks U-series system has several pre-defined IDP signatures used to detect the various attacks. You can update the IDP signatures by downloading signature definition files into the system. Please refer to section "13.1 Basic IDP Settings" for details.

By default, the system enables the detection of attacks based on all pre-defined IDP signatures. Select **"IDP > Signature > Pre-defined"** to view a list of the IDP signatures and their status. A partial list is shown in the figure below.

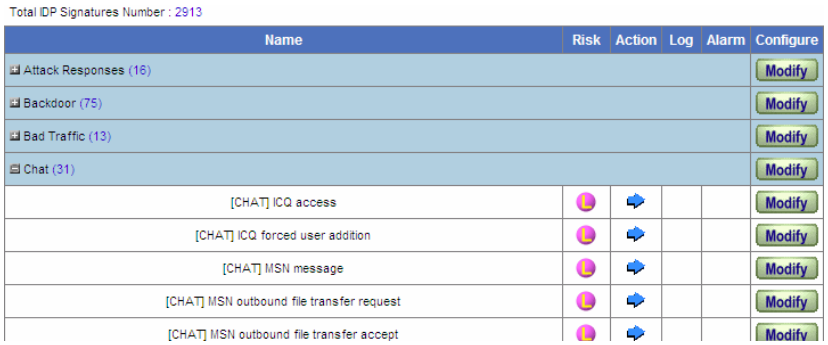


Figure 13.3

The IDP signatures are categorized into various groups including "Backdoor" attacks, "DDOS" attacks etc. Click the **[+]** button to view the list of signatures under each group.

The **Risk** column shows the risk level of the corresponding attack (H = high, M = medium, L = low).

Step 1: Click **[Modify]** to modify the status of an IDP signature.

Step 2: You can edit the **Action** to perform on packets detected to contain the corresponding attack.

Step 3: Select whether to **Log** the information of the packets detected to be carrying such an attack.

Step 4: You can also select to raise an **Alarm** when such attacks are detected. Note that this option is not available for SifoWorks U100.

13.2.3 Self-defined IDP Signatures

Aside from the pre-defined IDP signatures, administrators can also define customized signatures to meet their network's needs. Select **"IDP > Signature > Custom"** to view a list of administrator-defined IDP signatures. You can edit or remove any signature from the list by clicking on the appropriate buttons in the **Configure** column.

Step 1: Click **[New Entry]** to add a new IDP signature.

Step 2: Enter the **Name** of the signature.

Step 3: Select the **Protocol** of the packets to be matched to this IDP rule.

Step 4: Enter the **Source Port** and **Destination Port** of the packets to be matched.

Step 5: Specify the signature's **Risk** level and **Action** to be performed on the packets.

Step 6: Select whether to **Log** the packets' information and raise an **Alarm** when such attacks are detected. Note that you cannot select to raise an alarm for SifoWorks U100 devices.

Step 7: Enter the **Content** matching criteria of the signature. All packets containing this **Content** string will be matched to the signature and the corresponding **Action** will be carried out on the packet.

Note: *SifoWorks U100 does not support the* ***Disregard text case*** *and* ***Non-direction*** *advanced options. Hence, please skip steps 8 and 9 below if you are configuring a SifoWorks U100 device.*

Step 8: You can select to **Disregard text case** when matching contents.

Step 9: Select **Non-direction** to filter both incoming and outgoing packets. If **Non-direction** is not selected, the system will perform IDP according to the policies that have IDP enabled.

Step 10: Click **[OK]** to save the new IDP signature.

13.3 IDP Log Report

SifoWorks generates an overall log and statistics of the attack packets detected by the IDP function. Note that SifoWorks U100 does not generate IDP statistics.

13.3.1 Settings

Note: *This function is not available for SifoWorks U100 devices.*

Select **"IDP > IDP Report > Setting"** to set up the system to send periodic/history reports via email to the accounts configured in **"System > Configure > Setting"**. Please refer to section "2.1.2 Email Alert Notification Settings" for information on setting up email alert notification. Reports are sent in PDF format attached in the email.

Periodic Reports

Step 1: **Enable sending periodic report**.

Step 2: Select the type of reports to be sent via email.

Step 3: Click **[OK]** to save the configuration. The system will send reports based on the specified time period.

For example, select **Weekly report** to send a report for the previous week at 00:00 hour on the first day of each week.

History Reports

Select the type of report and the corresponding date. Click **[Mail Report]** to send the selected report immediately.

13.3.2 IDP Statistics

> ***Note:*** *This function is not available for SifoWorks U100 devices.*

Select **"IDP > IDP Report > Statistics"** from the menu to view the overall IDP statistics report. You can choose to view the daily, weekly, monthly or yearly reports by clicking on the appropriate buttons on the top left corner of the interface.

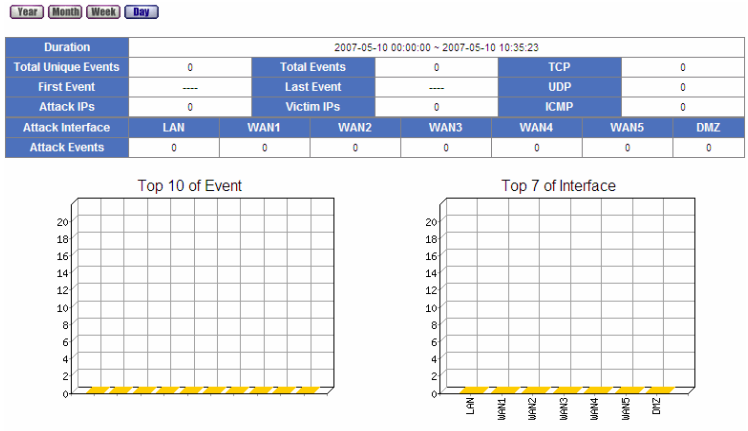


Figure 13.4

The report includes an overall table listing the actual figures and charts displaying the:

1. Top 10 types of attack events;
2. Top 7 interfaces on which attacks were detected;
3. Top 10 IP addresses from which attacks originate;
4. Top 10 victim IP addresses;
5. Overall event statistics.

11.3.3 IDP Log

The system logs the information of all packets matching the signatures with the **log** option selected. This facilitates the monitoring of IDP activities in the network and aids administrators in maintaining the security of the network.

Select **"IDP > IDP Report > Log"** to view the list of logs collected by the system.

Logged information includes the

1. **Time** of occurrence
2. **Event** occurred
3. **Signature** classification
4. the packet's incoming **Interface**
5. the IP address where the **Attack** originated from
6. the **Victim** IP address and port number
7. the **Action** taken on the packet

Searching for Specific IDP Logs

> ***Note:*** *IDP log search function is not available for SifoWorks U100 systems*

Step 1: From the left corner of the list, click the icon to specify criteria used to search for specific mails on the list. The criteria include:

1. Event type
2. Signature classification
3. Attack IP
4. Victim IP
5. Incoming interface of this packet
6. Date and time of the attack
7. Risk level

Step 2: Click **[Search]** to begin the search. The results of the search will be displayed in the list below.

Chapter

14

Anomaly Flow IP

Administrators can use the anomaly flow IP function to block specific internal IP addresses from which virus or intrusion attacks are detected to be originating from.

14.1 Basic Settings

Select **"Anomaly Flow IP > Setting"** to set up the basic settings of the function.

Anomaly Flow IP Setting

Step 1: Here, specify the maximum number of **sessions** established per second allowed for each source IP. When the number of sessions established per second exceeds this threshold, the IP will be detected as an anomaly flow IP.

Step 2: **Enable anomaly flow IP blocking** and specify the **blocking time** in seconds.

Step 3: Select whether to **enable E-mail alert notification** when anomaly flow is detected.

Step 4: Select whether to **enable SNMP Trap alert notification** when anomaly flow is detected.

Step 5: Select whether to **enable NetBIOS alert notification** when anomaly flow is detected and specify the **IP address** of the **administrator** to notify if NetBIOS alert notification is enabled.

Step 6: You can also **enable core switch port blocking**. SifoWorks will then inform the external switch as configured in **"Advance > Co-Defense > Core Switch"** to block all detected anomaly IP addresses. Please refer to section "15.3 Co-Defense System" for details. Note that this option is not available for SifoWorks U100 systems.

Step 7: Enter the **alert message** to be sent to the user from whom the anomaly flow is detected. You cannot specify the alert message on SifoWorks U100 devices.

Step 8: Click **[OK]** to save the configuration.

Non-detected IP

The second half of the interface displays a list of IP addresses that will not be checked for anomaly flow. You can modify or delete an IP address from the list by clicking on the appropriate buttons in the **configure** column.

Step 1: Click **[New Entry]** to add a new IP address.

Step 2: Select the **interface** through which this IP communicates with SifoWorks.

Step 3: Enter the **IP address** and **netmask**.

Step 4: Click **[OK]** to save the new IP.

14.2 Anomaly Flow IP Log

The system records the IP on which anomaly flow is detected. Administrators can view the logged records by selecting **"Anomaly Flow IP > Virus-infected IP"** from the left menu.

The logged information includes

1. **Interface** through which the IP communicates with SifoWorks,
2. the **IP** address,
3. the **MAC** address,
4. the **Time** when the alarm was raised.

Note: *SifoWorks U100 does not display MAC addresses in the Anomaly Flow IP logs.*

Chapter

15

Advanced Options

Note: *This function group is not available for SifoWorks U100 devices.*

15.1 Inbound Balance

SifoWorks U-series incorporates a function to provide load balancing for inbound traffic. This reduces the load on a single server and increases overall efficiency. It also reduces losses caused by system crashes as traffic can be routed to the other servers.

SifoWorks' inbound load balancing function makes use of the domain name resolution mechanism. When a user accesses a particular host name or IP address, SifoWorks checks the inbound load balancing DNS tables and determines the corresponding IP address.

For each host name, you can add multiple DNS address records can be added. The inbound load balancing function makes use of these records to route each user access to the same host to different interface ports in a round-robin manner, thus achieving load balancing.

You can also add a DNS address record, mapping a host name to an interface IP address that acts as a backup. When all other interfaces (mapped to the host name by other DNS records) fail, SifoWorks will route users' access to this backup interface. An example network topology with this function enabled is shown in the figure below.

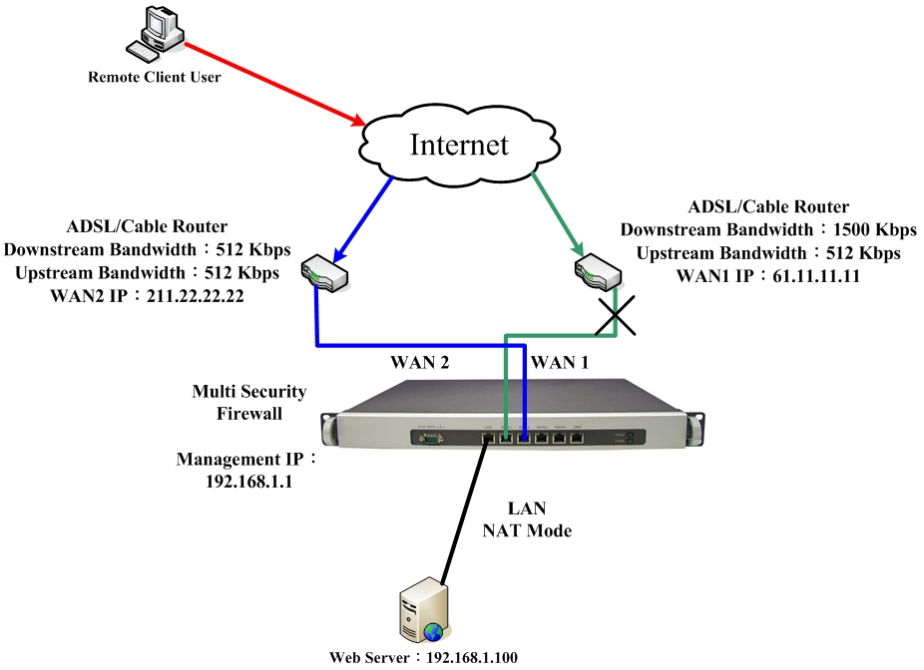


Figure 15.1

Select **"Advance > Inbound Balance > Setting"** to view the list of public **domains** configured with load balance servers. Click **[Remove]** from the **Configure** column to remove an entry from the list.

Figure 15.2

You can refer to the application examples later in this section on setting up SifoWorks to achieve these functions.

15.1.1 Adding Load Balance Servers to a Domain

To add the servers for load balancing for a particular domain, click the **[Modify]** button in the **Configure** column corresponding to the domain in the list (Figure 15.1).

Figure 15.3

The table that is displayed lists all the servers that can be accessed when users access this **Domain Name**. You can modify or remove

any server from the list by clicking the appropriate buttons in the **Configure** column.

For address servers configured with the “round-robin” balance mode, the system distributes the traffic load according to the weight and priority setting of each server. You can modify the settings by selecting the value from the drop down menu in the **Weight** and **Priority** columns.

Click **[New Entry]** to add a new server. The configuration interface will change depending on the **type** selected.

Type “A”

If “A” is selected, the system maps the domain name to this server’s IP address.

“Round-robin” mode distributes traffic load based on the weight and priority of the server. To enable the use of this server only if all other servers are disconnected, select the “Backup” mode. Note that only “A” type servers are used for traffic load distribution.

The table below shows an example of type “A” DNS records.

Domain Name	Type	IP Address
example.com	A	192.168.10.123
host1.edu.com	A	192.165.12.24
host1.edu.com	A	192.165.12.26

In this example, a DNS query for the domain name “host1.edu.com” will return two results. SifoWorks will arrange the results according to the selected balance mode.

Type “CNAME”

If “CNAME” is selected, the system maps the domain name to this alias domain name. Users can use either domain names to access the domain. The alias domain name can be used for external accesses to this host without exposing the internal domain name.

An example of a CNAME record in the DNS table is show below:

Domain Name	Type	IP Address
example.com	A	192.168.10.123
publicAccess.com	CNAME	example.com

In this example, “publicAccess.com” is the alias name for the domain “example.com”. Pinging “publicAccess.com” will ping the IP address 192.168.10.123.

Type “MX”

“MX” refers to “Mail Exchange”. This is a type of DNS record specifically used for e-mail services. If “MX” is selected, the system is able to perform mail transfers via DNS. When the user changes his mail server, he need only modify the DNS record. Hence, the destination mail server need not know the mail server used to transfer the mails.

An example of a MX record in the DNS table is show below:

Domain Name	Type	IP Address
mail25.int.com	A	192.168.10.211
mail.com	MX	mail25.int.com

All mails sent to addresses using the domain “mail.com” will be sent via the mail25.int.com server.

Type “SPF”

SPF is a mail security mechanism, performing anti-spam, anti-phishing and sender verification.

If “SPF” (Sender Policy Framework) is selected, when a mail is received from a sender belonging in the same network domain, the mail server will check the sender’s email address against the DNS SPF records. This is to check if the sender’s mail server IP is listed within the SPF IP list.

The following examples illustrate the usage and configuration procedures for each of the above types.

Application Example – Type "A" Backup

Objective – Using type "A" DNS records, set up the system such that all web accesses are routed to the WAN2 interface only if WAN1 is disconnected.

In this example, the IP addresses of the WAN1 and WAN2 interfaces are 61.11.11.11 and 211.22.22.22 respectively.

The DNS domain name obtained from the ISP is example.com. The host name of the primary DNS server is dns1.example.com with IP address 61.11.11.11. The host name of the secondary DNS server is dns2.example.com with IP address 211.22.22.22.

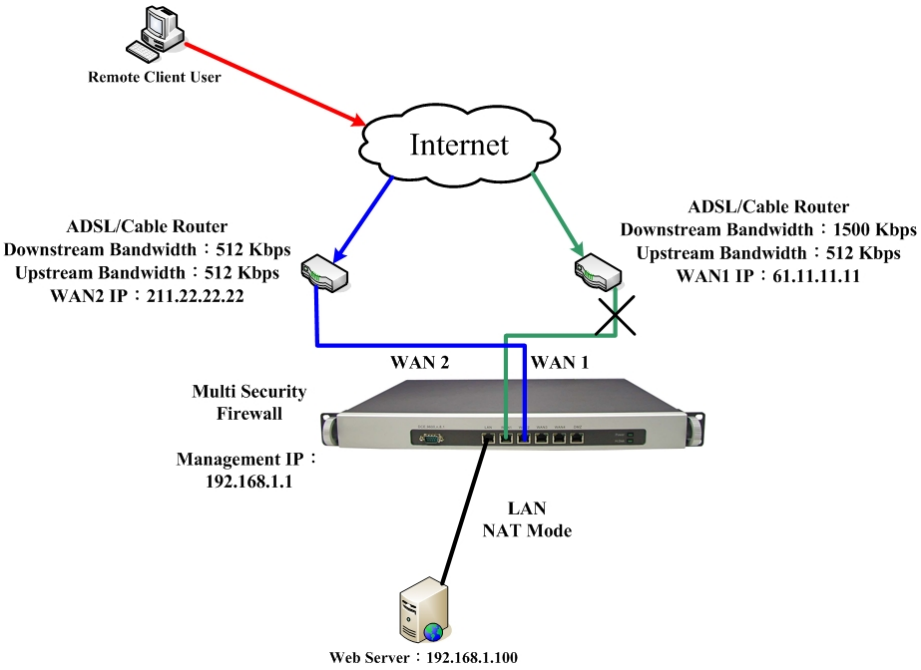


Figure 15.4

Step 1: **Login to the SifoWorks UTM administrative interface.**

Step 2: **Set up the DNS domain name**

Step 2.1: From the left menu bar, select **"Advance > Inbound Balance > Setting".**

Step 2.2: Click **[New Entry]**. Enter the **domain name** "example.com" obtained from the ISP and **enable dns zone**. Click **[OK]** to save the settings.

Step 3: **Set up a DNS type "A" record**

Step 3.1: The page will refresh to display the DNS record list for this DNS domain. Click the **[New Entry]** button that appears at the bottom of the list.

Step 3.2: Select **type** "A (Address)" and configure as follows:

Host Name: www

Address: Select "WAN1" from the drop down menu. The IP address of the WAN1 interface ("61.11.11.11") will be entered into the textbox automatically

Balance Mode: Round-robin

Step 3.3: The figure below illustrates the above configuration. Click **[OK]** to save this new record.

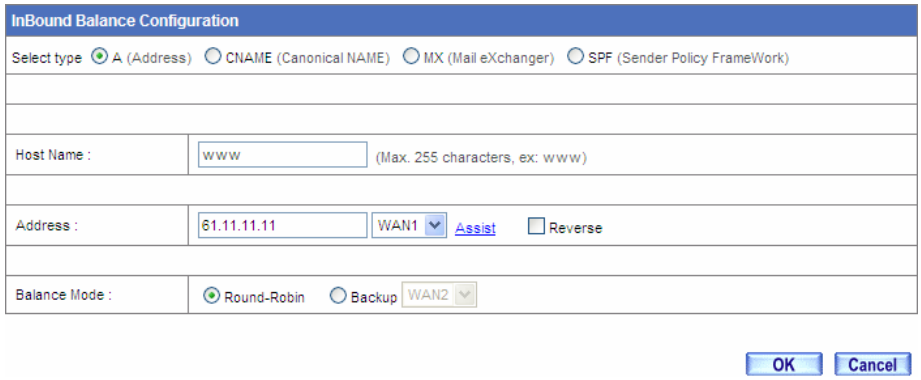


Figure 15.5

Step 4: **Set up another DNS type "A" record**

Step 4.1: Return to the DNS record list and click the **[New Entry]** button that appears at the bottom of the list.

Step 4.2: Select **type** "A (Address)" and configure as follows:

Host Name: www

Address: Select "WAN2" from the drop down menu. The IP address of the WAN2 interface ("211.22.22.22") will be entered into the textbox automatically

Balance Mode: Enable the Backup balance mode and select "WAN1" from the drop down menu.

Step 4.3: The figure below illustrates the above configuration. Click **[OK]** to save this new record.

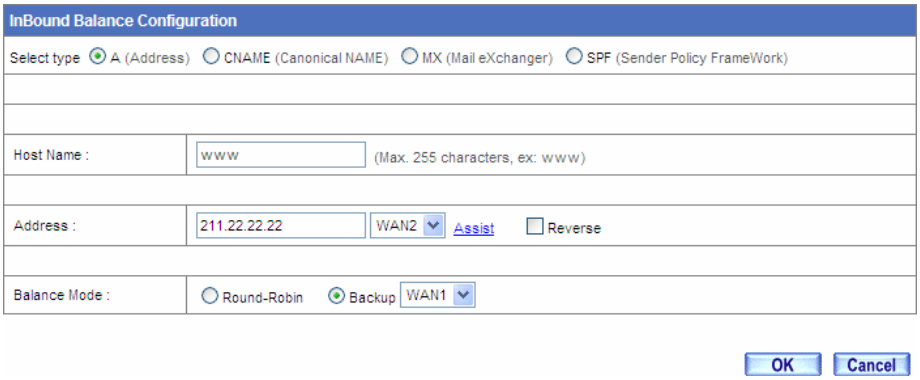


Figure 15.6

Step 5: **Adding Virtual service**

Step 5.1: From the left menu bar, select **"Policy Object > Virtual Server > Server 1"**.

Step 5.2: Configure the **real IP** of virtual server 1 to be WAN1's IP address (61.11.11.11).

Step 5.3: Add a new entry to map the public address "192.168.1.100" to this address to provide web services (HTTP:80).

Please refer to section 7.2 One-to-Many Virtual Server Mappings" for details on configuring virtual servers.

Step 6: **Set up an incoming policy**

From the left menu bar, select **"Policy > Incoming"** and set up an incoming policy allowing all accesses to the virtual server's address from external sources.

Please refer to section "4.2 Incoming Policies" for more information on incoming policies.

Step 7: **Repeat steps 5 and 6 to add another virtual server using the WAN2 interface**

Result of Configuration

When WAN1 link fails, all incoming accesses to the web server will be routed via WAN2.

Application Example – Round Robin

Objective – Set up the system such that traffic to the web server is distributed among WAN1 and WAN2 in a round-robin fashion

In this example, the IP addresses of the WAN1 and WAN2 interfaces are 61.11.11.11 and 211.22.22.22 respectively.

The DNS domain name obtained from the ISP is example.com. The host name of the primary DNS server is dns1.example.com with IP address 61.11.11.11. The host name of the secondary DNS server is dns2.example.com with IP address 211.22.22.22.

This example adds 3 DNS records. 2 type "A" records for round-robin load balancing. A "CNAME" record is also added, mapping a domain name available for public access to an internal domain name.

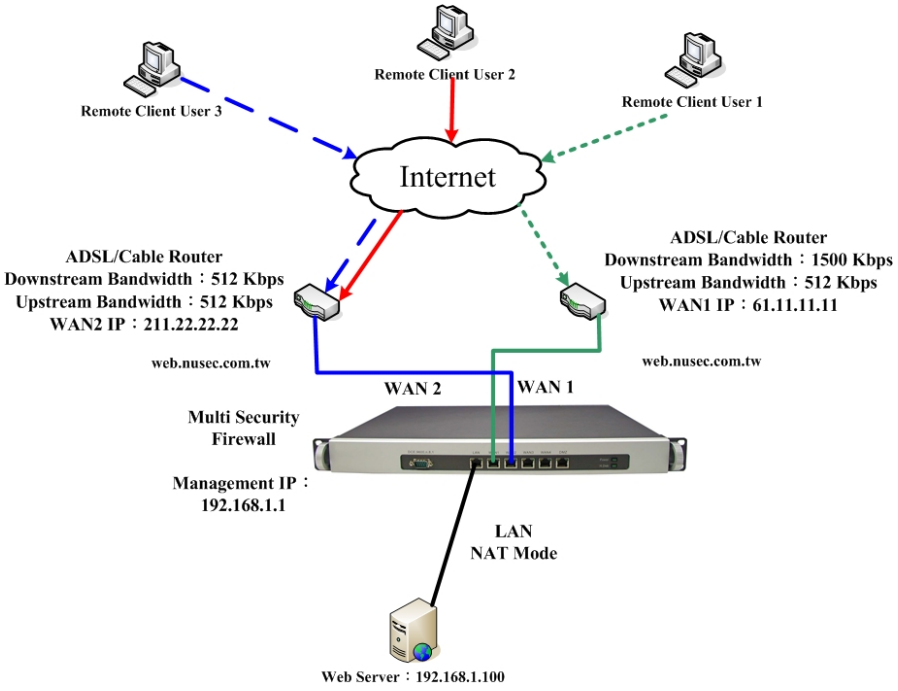


Figure 15.7

Step 1: **Login to the SifoWorks UTM administrative interface.**

Step 2: **Set up the DNS domain name**

Step 2.1: From the left menu bar, select **"Advance > Inbound Balance > Setting".**

Step 2.2: Click **[New Entry]**. Enter the **domain name** "example.com" obtained from the ISP and **enable dns zone**. Click **[OK]** to save the settings.

Step 3: **Set up a DNS type "A" record**

Step 3.1: The page will refresh to display the DNS record list for this DNS domain. Click the **[New Entry]** button that appears at the bottom of the list.

Step 3.2: Select **type** "A (Address)" and configure as follows:

Host Name: web.example.com

Address: Select "WAN1" from the drop down menu. The IP address of the WAN1 interface ("61.11.11.11") will be entered into the textbox automatically

Balance Mode: Round-robin

Step 3.3: Click **[OK]** to save this new record.

Step 3.4: Return to the DNS record list and select "1" for both **weight** and **priority** of this record.

Step 4: **Set up another DNS type "A" record**

Step 4.1: Return to the DNS record list and click the **[New Entry]** button that appears at the bottom of the list.

Step 4.2: Select **type** "A (Address)" and configure as follows:

Host Name: web.example.com

Address: Select "WAN2" from the drop down menu. The IP address of the WAN2 interface ("211.22.22.22") will be entered into the textbox automatically

Balance Mode: Round-robin

Step 4.3: Click **[OK]** to save this new record.

Step 4.4: Return to the DNS record list and select "2" for both **weight** and **priority** of this record.

Step 5: **Set up a DNS type "CNAME" record for public access**

Step 5.1: Return to the DNS record list and click the **[New Entry]** button that appears at the bottom of the list.

Step 5.2: Select **type** "CNAME" and configure as follows:

Host Name: www.example.com

Address: web.example.com

Step 5.3: Click **[OK]** to save this new record.

Step 6: **Adding Virtual service**

Add a virtual web (HTTP) service (**"Policy Object > Virtual Server > Server 1"**) for WAN1 mapping the public address 192.168.1.100:80 to WAN1's address (61.11.11.11).

Add a virtual web (HTTP) service (**"Policy Object > Virtual Server > Server 2"**) for WAN2 mapping the public address 192.168.1.100:80 to WAN2's address (211.22.22.22).

Please refer to section "7.2 One-to-Many Virtual Server Mappings" for details on configuring virtual servers.

Step 7: **Set up an incoming policy**

From the left menu bar, select **"Policy > Incoming"** and set up an incoming policy allowing all accesses to the 2 virtual servers' addresses from external sources.

Please refer to section "4.2 Incoming Policies" for more information on incoming policies.

Result of Configuration

Users can access the internal web server (web.example.com) using the public host name "www.example.com".

The first user to access this web server will be routed via WAN1. The next two users (2nd and 3rd user) will access the server via WAN2. The fourth user's access will be routed again to WAN1 and so on.

15.2 High Availability

SifoWorks U-series also offers a high availability (HA) system. When this function is enabled, a pair of SifoWorks devices works together such that when the “master” device malfunctions, the “backup” device will be able to replace the “master” device’s operations. This provides redundancy and ensures the stability of the network.

Select **“Advance > High Availability > Setting”** to configure HA. Please refer to the application example below for details on HA configuration.

At a scheduled time daily, the master device will check if configurations on the slave device are identical to itself. If not, the master device will synchronize its configurations onto the slave device.

You can also manually activate a synchronization event between the two HA peer devices by clicking the **[Sync NOW]** button. This reduces administrator workload and configuration errors as only the master device must be configured appropriately. All configurations can then be synchronized to the slave device.

Once the two devices are connected to the networks and HA is activated, the master device will begin operating in the network normally. The slave device remains in backup state and will only take over operations if the master device malfunctions.

Application Example

Objective – To set up two SifoWorks devices in the network for High Availability (HA)

Two SifoWorks devices, SifoWorks_A and SifoWorks_B are to be deployed in the network with high availability enabled. SifoWorks_A is the master device and SifoWorks_B is the slave device.

Step 1: **Connecting the master device to the LAN network**

Using a standard network cable, connect SifoWorks_A to the switch connected to LAN.

Step 2: **Configuring SifoWorks_A network port settings.**

Step 2.1: Login to SifoWorks_A administrative interface.

Step 2.2: From the left menu bar, select **"Interface > LAN"** and set the **IP address** for this device's LAN port as 192.168.10.1.

Step 3: **Configuring SifoWorks_A HA settings.**

Step 3.1: From the left menu bar, select **"Advance > High Availability > Setting"**.

Step 3.2: In the interface displayed, select to **enable high availability**.

Step 3.3: Set the **IP Address (for Management)** as 192.168.10.100.

Note that the management IP address must be a unique IP belonging to the same subnet as the LAN interface's IP address set up in Step 2 above.

Step 3.4: Select "Master" for this device's **High Availability Mode**.

Step 3.5: Select to **Synchronize system configurations daily at** "0:00" daily. The system will automatically synchronize all configurations from the master device to the slave device at 12 midnight each day.

This option can only be configured for the master device. The slave device will reboot after each synchronization event.

Step 3.6: The figure below illustrates the above configurations. Click **[OK]** to save the settings.

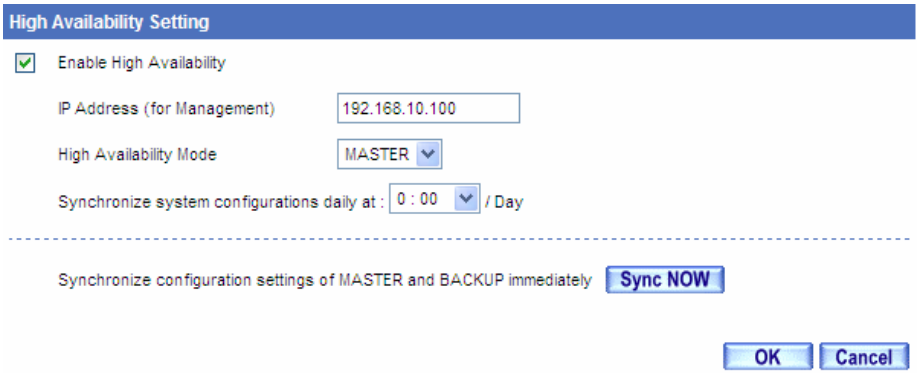


Figure 15.8

Step 4: **Connecting the master device to the LAN network**

Step 4.1: Disconnect the network cable connecting SifoWorks_A (master) to the LAN switch.

Step 4.1: Connect a network cable from SifoWorks_B (slave) to the switch connecting to the LAN network.

Step 5: **Configuring SifoWorks_B network port settings.**

Step 5.1: Login to SifoWorks_B administrative interface.

Step 5.2: From the left menu bar, select **"Interface > LAN"** and set the **IP address** for this device's LAN port as 192.168.10.1.

Note that the interface IP address for the slave device must be the same as that configured for the master device.

Step 6: **Configuring SifoWorks_B HA settings.**

Step 6.1: From the left menu bar, select **"Advance > High Availability > Setting"**.

Step 6.2: In the interface displayed, select to **enable high availability**.

Step 6.3: Set the **IP Address (for Management)** as 192.168.10.200.

Note that the management IP address must be a unique IP belonging to the same subnet as the LAN interface's IP address set up in Step 5 above.

Step 6.4: Select "Slave" for this device's **High Availability Mode**.

Step 7: **Connecting the network cables**

Step 7.1: Re-connect the network cable from SifoWorks_A (master) to the LAN switch.

Step 7.2: Ensure that both devices are connected to the same switches connecting to the DMZ and WAN networks as shown in the figure below.

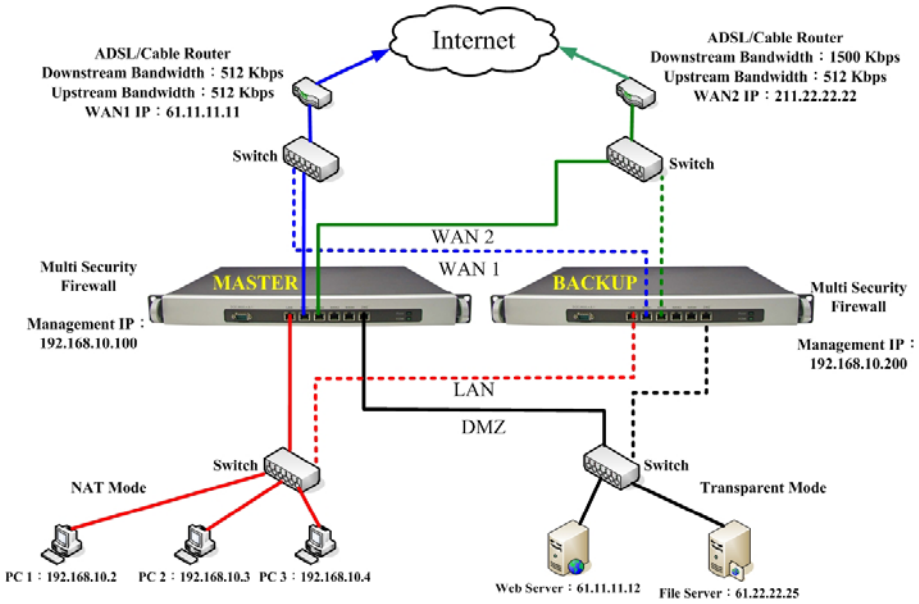


Figure 15.9

Step 8: **Initial Synchronization**

Step 8.1: From your web browser, enter the LAN IP "192.168.10.1" as specified in the earlier steps. Login to the interface.

Step 8.2: From the left menu bar, select **"Advance > High Availability > Setting"**.

Step 8.3: From the displayed interface, check that you are accessing the master device (SifoWorks_A) from the **High availability mode** field.

Step 8.4: Configure the master device according to your network requirements.

Step 8.5: Return to the **"Advance > High Availability > Setting"** interface and click **[Sync NOW]**.

All configurations on SifoWorks_A will be synchronized onto the slave device, SifoWorks_B. SifoWorks_B will then restart. You can access SifoWorks_B's administrative interface via its administrative IP address to check if all configurations were successfully synchronized.

15.3 Co-Defense System

The SifoWorks system is able to monitor network traffic of internal devices in real-time. The co-defense system function works together with the anomaly flow IP function to block traffic from a particular IP if an excessive amount of data packets is sent from this IP. Please refer to chapter 14 for details on the anomaly flow IP function.

In this function, third-party switches are linked to the SifoWorks anomaly IP function. When a suspicious IP address is detected, SifoWorks blocks this IP and notifies the switch. The switch will then block traffic from this IP address as well. This helps administrators eliminate network abnormalities rapidly, preventing the network from going down.

15.3.1 Configuring the Core Switch

Core switches are deployed between SifoWorks and the internal networks. When an anomaly is detected in the traffic flow from a particular IP, SifoWorks will inform the core switch to block the switch's interface used to transmit data from this IP,

Note that you must have activated the "**Enable core switch port blocking**" option from the **"Anomaly Flow IP > Setting"** interface.

Step 1: Select **"Advance > Co-Defense System > Core Switch"** from the left menu to configure the core external switch used in co-defense with SifoWorks.

Step 2: Select the **Switch** from the drop down menu and enter the **IP Address** of the switch.

Step 3: Enter the **Username** and **Password** used to authenticate SifoWorks with the selected switch.

Step 4: Click **[OK]** to save the settings.

15.3.2 Edge Switch Settings

An edge switch refers to any switch deployed within the network connected to your SifoWorks U-series device. Edge switches contain IP-MAC information on all workstations located within the networks they are connected to. Administrators can view this information from the **"Advance > Co-Defense System > MAC on SwitchPort"** interface. Please refer to section 15.3.3 for information on the MAC list.

Select **"Advance > Co-Defense System > Edge Switch"** from the left menu to view the list of all switches (other than the core switch) previously added to SifoWorks. You can modify or remove any edge switch by clicking on the appropriate buttons in the **Configure** column. Note that this configuration is optional and does not affect the co-defense system function.

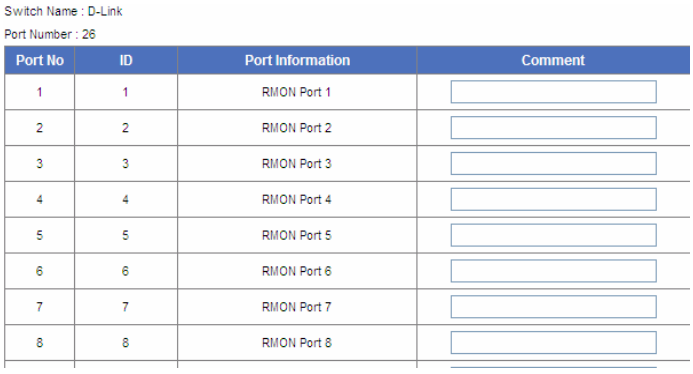
Step 1: Click **[New Entry]** to add a new edge switch setting.

Step 2: Enter the **name** of the switch, **IP address** and the **SNMP Community** this switch belongs to. Click **[Test]** to test that the configuration is correct.

Step 3: Click **[OK]** to save the setting.

Viewing Switch Details

You can also view the details of each switch in the list by clicking the **[Detail]** button in the corresponding **configure** column. The details displayed for a switch is partially shown below:


Switch Name : D-Link
Port Number : 26

Port No	ID	Port Information	Comment
1	1	RMON Port 1	
2	2	RMON Port 2	
3	3	RMON Port 3	
4	4	RMON Port 4	
5	5	RMON Port 5	
6	6	RMON Port 6	
7	7	RMON Port 7	
8	8	RMON Port 8	

Figure 15.10

The switch's **name** and total number of **ports** is displayed on the top of the list. The details of the switch shown in the list include the individual **port** numbers, port **ID** and brief **information** of the corresponding port. You can add **comments** for each port in the list. For example, you can specify the network domain names in the **comments** column to easily identify which ports are connected to which domains. Click **[OK]** to save the changes and return to the edge switch list.

15.3.3 MAC table for all Switches

Select **"Advance > Co-Defense System > MAC on SwitchPort"** to view the list of switches in the networks connected to the SifoWorks U-series (according to the list in **"Advance > Co-defense > Edge Switch"**). The table displays information including the switch's **IP address**, **MAC address**, **name** and **port**.

If the table spans more than 1 page, use the **[Next]** link from the top left corner to view the next page or the **[Back]** link to view the previous page.

MAC Address Query

Step 1: From the left corner of the list, click the icon to specify criteria used to search for specific switches. These include:

Switch Name: Name of the switch

Switch Port: Switch's port number connected to SifoWorks

MAC Address: MAC address of the switch

Step 2: Click **[Search]** to begin the search. The results of the search will be displayed in the list below.

Chapter

16

System Monitoring

SifoWorks U-series offers a variety of monitoring functions such as log, reports, statistics etc. to facilitate the task of monitoring and debugging network events and problems.

16.1 Logs

Administrators can view a list of logs collected by the system by selecting **"Monitor > Log"**. Log files aid in the administrator's task of debugging errors in the network.

The log files are categorized into 6 groups, traffic logs, event logs, connection logs, virus logs, application blocking logs and content blocking logs.

16.1.1 Log Settings

Select **"Monitor > Log > Setting"** to set up the automatic log backup configuration in the system.

Note: *This function can be accessed from the menu* ***"Monitor > Log > Log Backup"*** *on SifoWorks U100.*

The interface is partially shown below:

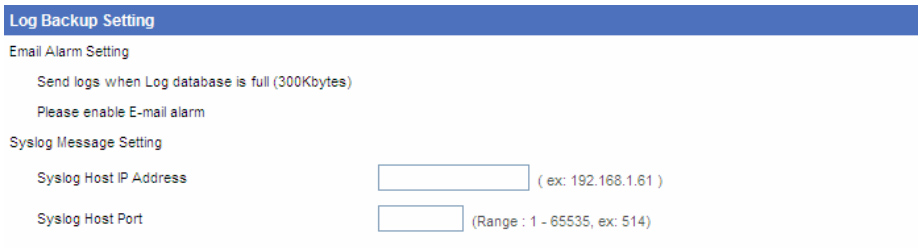

Log Backup Setting
Email Alarm Setting
Send logs when Log database is full (300Kbytes)
Please enable E-mail alarm
Syslog Message Setting
Syslog Host IP Address
(ex: 192.168.1.61)
Syslog Host Port
(Range : 1 - 65535, ex: 514)

Figure 16.1

Step 1: Enable E-mail alert from **"System > Configure > Setting"** (section "2.1.2 Email Alert Notification Settings").

Step 2: Specify the **syslog host IP address** and **port**.

Log Setting for Different Log Types

From the next half of the interface, you can configure the log setting for the different log types individually. Note that these configuration options are not available for SifoWorks U100.

Step 1: Specify the **Storage lifetime** for each log type (traffic, event, connection, virus, IMP2P, content blocking).

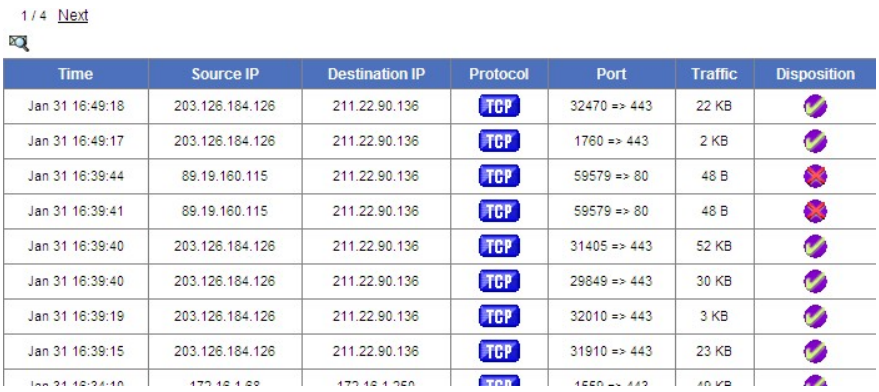
Step 2: Select to enable sending the log to a specified **Email**. When this is enabled, SifoWorks will automatically send the log list to the email server when the log database exceeds 300Kbytes in size. The logs will then be cleared from the system.

Step 3: Select to **Enable Syslog Message** to be sent to the syslog server specified above.

Step 4: Click **[OK]** to save the configuration.

16.1.2 Traffic Logs

Traffic logs records information regarding all network traffic flow. Select **"Monitor > Log > Traffic"** to view a list of the logs collected by the system. Logging of the traffic packets can be enabled when defining the system's policies. Please refer to chapter "4 Firewall Policy Management" on policy management for details.



Time	Source IP	Destination IP	Protocol	Port	Traffic	Disposition
Jan 31 16:49:18	203.126.184.126	211.22.90.136	TCP	32470 => 443	22 KB	
Jan 31 16:49:17	203.126.184.126	211.22.90.136	TCP	1760 => 443	2 KB	
Jan 31 16:39:44	89.19.160.115	211.22.90.136	TCP	59579 => 80	48 B	
Jan 31 16:39:41	89.19.160.115	211.22.90.136	TCP	59579 => 80	48 B	
Jan 31 16:39:40	203.126.184.126	211.22.90.136	TCP	31405 => 443	52 KB	
Jan 31 16:39:40	203.126.184.126	211.22.90.136	TCP	29849 => 443	30 KB	
Jan 31 16:39:19	203.126.184.126	211.22.90.136	TCP	32010 => 443	3 KB	
Jan 31 16:39:15	203.126.184.126	211.22.90.136	TCP	31910 => 443	23 KB	

Figure 16.2

The logged information includes:

1. Date and **Time** the packet was logged
2. **Source** and **Destination** IP address and **Port** of the logged packet

3. **Protocol** used by the packet
4. packet size
5. whether the packet was allowed or denied from the network in the **Disposition** column

If the log spans more than 1 page, use the **[Next]** link from the top left corner to view the next page or the **[Back]** link to view the previous page.

From the bottom of the list, click **[Clear Data]** to delete the collected traffic logs.

Log Query

Step 1: From the left corner of the list, click the icon to specify criteria used to search for specific traffic logs.

Note: *SifoWorks U100 devices only support the filtering of log list based on date and time. You can select to a particular starting time from the top of the log list to filter the list accordingly.*

Step 2: Click **[Search]** to begin the search. The results of the search will be displayed in the list below. You can click **[Download]** to download the log list displayed.

16.1.3 Event Logs

Event logs records information on administrator's activities in the system such as logins and other configuration activities. You can enable the logging of administrative activities when configuring the basic system settings. Please refer to section "2.1.5 Basic Network Settings" for details.

Select **"Monitor > Log > Event"** to view the log list. The logged information includes

1. date and **Time** of event occurrence
2. username of the **Admin** performing the event
3. **IP Address** of the administrator
4. description of the **Event**

For events that involve changing the configuration of the system, click the icon from the **Detail** column to view the before and after configuration details.

If the log spans more than 1 page, use the **[Next]** link to view the next page or the **[Back]** link to view the previous page.

From the bottom of the list, click **[Clear Data]** to delete the collected traffic logs.

Log Query

Step 1: From the left corner of the list, click the icon to specify criteria used to search for specific event logs.

Note: *SifoWorks U100 devices only support the filtering of log list based on date and time. You can select to a particular starting time from the top of the log list to filter the list accordingly.*

Step 2: Click **[Search]** to begin the search. The results of the search will be displayed in the list below.

16.1.4 Connection Logs

Connection logs records information regarding VPN connection activities over the system. Select **"Monitor > Log > Connection"** to view the log list.

The logged information includes

1. date and **Time** of occurrence
2. description of the connection **Event**.

If the log spans more than 1 page, use the **[Next]** link to view the next page or the **[Back]** link to view the previous page. From the bottom of the list, click **[Clear Data]** to delete the collected traffic logs.

Log Query

Step 1: From the left corner of the list, click the icon to specify criteria used to search for specific connection logs.

Note: *SifoWorks U100 devices only support the filtering of log list based on date and time. You can select to a particular starting time from the top of the log list to filter the list accordingly.*

Step 2: Click **[Search]** to begin the search. The results of the search will be displayed in the list below.

16.1.5 Virus Logs

Note: *This function is not available for SifoWorks U100 devices.*

Virus log records information regarding all HTTP/Webmail and FTP packets processed accordingly to SifoWorks policies and detected to contain viruses. Select **"Monitor > Log > Virus"** to view this list.

The logged information includes

1. date and **Time** of occurrence
2. **Source** and **Destination IP** address of the packet
3. packet **Protocol**
4. name of the **Download File** this packet originates from
5. name of the **Virus** detected

If the log spans more than 1 page, use the **[Next]** link to view the next page or the **[Back]** link to view the previous page. From the bottom of the list, click **[Clear Data]** to delete the collected traffic logs.

Log Query

Step 1: From the left corner of the list, click the icon to specify criteria used to search for specific virus logs.

Step 2: Click **[Search]** to begin the search. The results of the search will be displayed in the list below.

16.1.6 Application Blocking

Application blocking log records information on all packets blocked by the access rules because they originate from applications that are blocked according to the application blocking settings. Select **"Monitor > Log > App Blocking"** to view this list.

The logged information includes

1. date and **Time** of occurrence
2. **Source IP** address of the packet
3. name of the **Application**

If the log spans more than 1 page, use the **[Next]** link to view the next page or the **[Back]** link to view the previous page.

From the bottom of the list, click **[Clear Data]** to delete the collected traffic logs.

Log Query

Step 1: From the left corner of the list, click the icon to specify criteria used to search for specific application blocking logs.

> ***Note:*** *SifoWorks U100 devices only support the filtering of log list based on date and time. You can select to a particular starting time from the top of the log list to filter the list accordingly.*

Step 2: Click **[Search]** to begin the search. The results of the search will be displayed in the list below.

16.1.7 Content Blocking

Content blocking log records information on all packets blocked by because they contain contents that are blocked according to the **"Policy Object > Content Blocking"** settings. Select **"Monitor > Log > Content Blocking"** to view this list.

The logged information includes

1. date and **Time** of occurrence
2. **Source** and **Destination IP** address of the packet
3. packet **Protocol**
4. **Port** number
5. **Type** of content that was blocked

If the log spans more than 1 page, use the **[Next]** link to view the next page or the **[Back]** link to view the previous page.

From the bottom of the list, click **[Clear Data]** to delete the collected traffic logs.

Log Query

Step 1: From the left corner of the list, click the icon to specify criteria used to search for specific content blocking logs.

> ***Note:*** *SifoWorks U100 devices only support the filtering of log list based on date and time. You can select to a particular starting time from the top of the log list to filter the list accordingly.*

Step 2: Click **[Search]** to begin the search. The results of the search will be displayed in the list below.

16.2 Report

Administrators can view an overall report of the outbound and inbound traffic through the SifoWorks U-series system.

Step 1: Select **"Monitor > Accounting Report > Setting"** to set up the use of this function.

Step 2: Here, select the information to be included in the **Outbound** and **Inbound** reports.

Step 3: The selectable parameters include **User**, **Site** and **Service** accessed. Note that SifoWorks U100 generates outbound and inbound reports based on source IP, destination IP and accessed service instead.

Step 4: Click **[OK]** to save the configuration.

16.2.1 Outbound Traffic Report

Select **"Monitor > Accounting Report > Outbound"** to view the overall report generated by the system for all outgoing traffic through the system.

For SifoWorks U100 devices, select whether to generate the report based on the **Source IP**, **Destination IP** or **Service** from the drop down menu. Only tabulated reports are available for **Source IP** and **Destination IP** reports while both tables and pie charts are available for **Service** reports.

For all other models, select to view the report collected based on **User** (LAN, DMZ), **Site** (external servers) or **Service** by clicking the appropriate buttons from the top left corner of the list. This is explained in detail in the following sections.

User Outbound Report

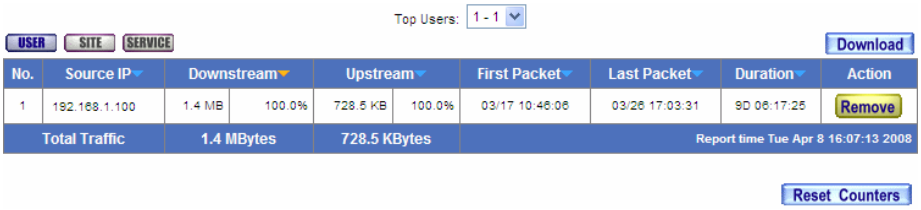


Figure 16.3

Each row in this list corresponds to the total outbound traffic generated by a single user. You can sort the report according to a particular column by clicking on the column header. An orange arrow represents that the report is currently being sorted according to that column. An up arrow indicates ascending order while a down arrow indicates descending order.

Up to 10 items are displayed per page. You can view the other items by selecting from the **Top** drop down menu.

The total upstream and downstream statistics for all report items spanning all pages is displayed at the bottom of the list.

Click **[Download]** to save the report into a file in local storage. SifoWorks U100 does not support this download function.

Click **[Reset Counters]** to remove all items from the report and restart the report generation.

Site Outbound Report

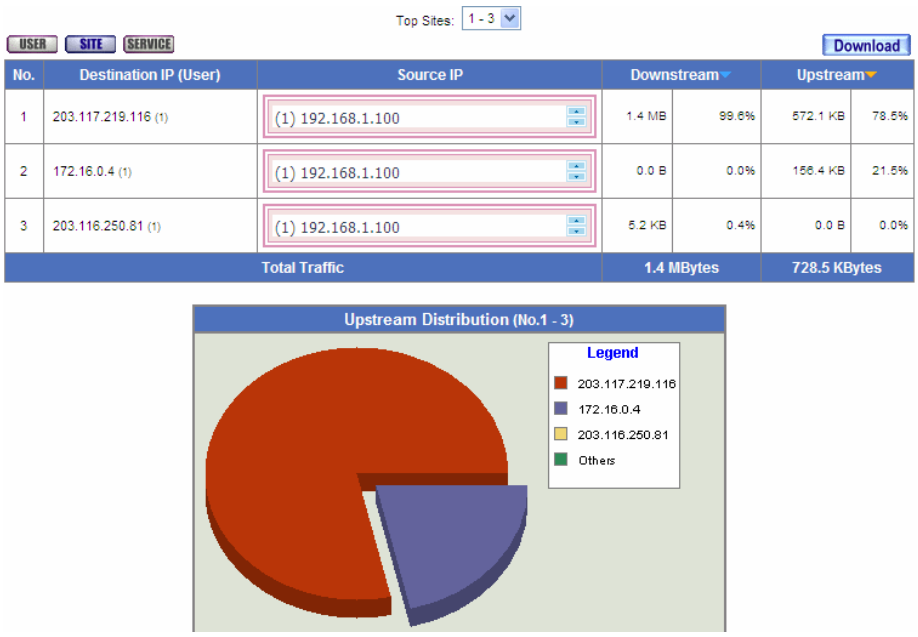


Figure 16.4

Each row in this list corresponds to the total outbound traffic generated by a single destination host. You can sort the report according to either the downstream or upstream traffic by clicking on the column header. An orange arrow represents that the report is currently being sorted according to that column. An up arrow indicates ascending order while a down arrow indicates descending order.

Up to 10 items are displayed per page. You can view the other items by selecting from the **Top** drop down menu.

The total upstream and downstream statistics for all report items spanning all pages is displayed at the bottom of the list.

Below the table, a pie chart showing the distribution of traffic among all sites is displayed. This pie chart is generated for the type

of traffic (downstream/upstream) that the list is currently being sorted by.

Click **[Download]** to save the report into a file in local storage. SifoWorks U100 does not support this download function.

Service Outbound Report

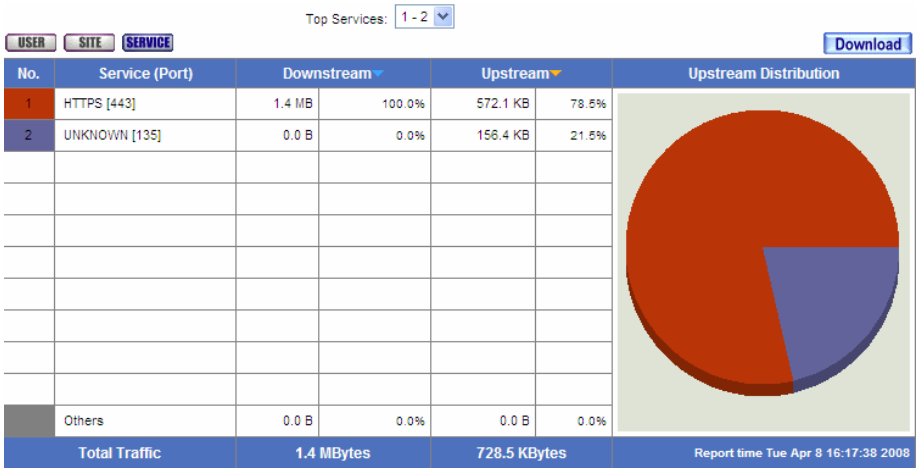


Figure 16.5

Each row in this list corresponds to the total outbound traffic generated by a single service. You can sort the report according to either the downstream or upstream traffic by clicking on the column header. An orange arrow represents that the report is currently being sorted according to that column. An up arrow indicates ascending order while a down arrow indicates descending order.

Up to 10 items are displayed per page. You can view the other items by selecting from the **Top** drop down menu.

The total upstream and downstream statistics for all report items spanning all pages is displayed at the bottom of the list.

To the right, a pie chart showing the distribution of traffic among the services is displayed. This pie chart is generated for the type of traffic (downstream/upstream) that the list is currently being sorted by.

Click **[Download]** to save the report into a file in local storage. SifoWorks U100 does not support this download function.

16.2.2 Inbound Traffic Report

Select **"Monitor > Accounting Report > Inbound"** to view the report for inbound traffic. The interface is identical to the outbound traffic report. Please refer to the above section "16.2.1 Outbound Traffic Report" for details.

16.3 Statistics

The SifoWorks system is able to generate overall statistical charts displaying the incoming and outgoing traffic transmitted through its interfaces. This function provides administrator with the ability to monitor network traffic based on date and time. The chart form also makes it easy for administrators to find information such as the date and time when network traffic is at its highest, when network bandwidth is underutilized etc.

The system generates two types of statistics, WAN statistics and policy statistics.

16.3.1 WAN Statistics

WAN statistics includes charts showing all incoming and outgoing traffic over the system's WAN interfaces. Select **"Monitor > Statistics > WAN"**.

WAN	Time
WAN 1	Minute Hour Day Week Month Year
All WAN Interface	Minute Hour Day Week Month Year

Figure 16.6

From the list, you can view the statistics for each enabled WAN interface individually or the overall statistics for all WAN interfaces. From the **Time** column, you can select the type of chart you wish to view to bring up the corresponding charts as partially shown in the figure below.

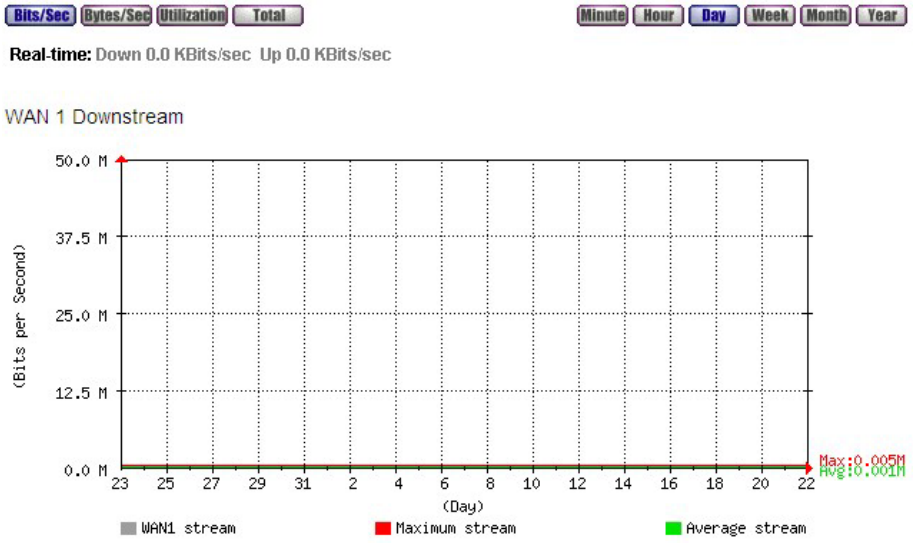


Figure 16.7

You can view 4 different charts in this interface:

1. Interface downstream (bit rate Vs. time)
2. Interface upstream (bit rate Vs. time)
3. Received packets (number of packets received per second Vs. time)
4. Sent packets (number of packets sent per second Vs. time)

From the top left corner of the page, select to draw the chart based on bit/second, byte/second, utilization percentage or total bytes.

From the top right corner of the page, select the time axis unit.

1. Minute: statistics displayed per minute for a total of 1 hour
2. Hour: Hourly statistics for a total of 24 hours
3. Day: Daily statistics for a total of 1 month
4. Week: Weekly statistics for a total of 3 months
5. Month: Monthly statistics for a total of 1 year
6. Year: Yearly statistics for a total of 10 years.

16.3.2 Policy Statistics

You can enable the generation of statistical chart for specific policies by enabling the **Statistic** option when managing policies. Please refer to chapter "4 Firewall Policy Management" for details.

To view the list of policies with statistics enabled, select **"Monitor > Statistics > Policy"** from the left menu. As with the WAN interface statistics, you can select the time unit to view the chart in.

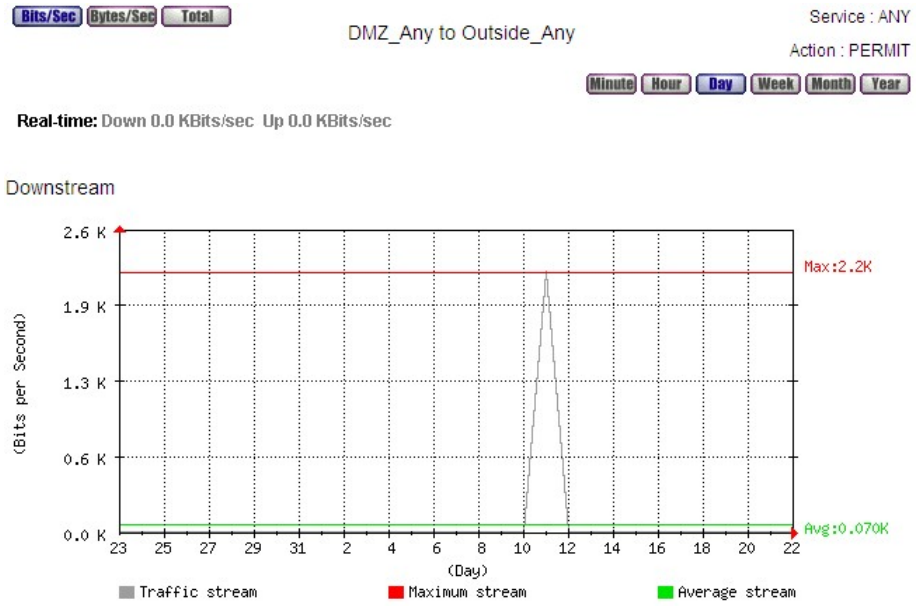


Figure 16.8

You can view the downstream and upstream bit rate vs. time charts for the policy here. The charts display the statistics collected based on all packets flowing through the system that matches the policy.

From the top left corner of the page, select to draw the chart based on bit/second, byte/second or total bytes.

From the top right corner of the page, select the time axis unit.

16.4 Diagnostic Tools

SifoWorks U-series provides the Ping and Traceroute tools to test whether network links are working correctly.

16.4.1 Ping

Step 1: Select **"Monitor > Diagnostic > Ping"**.

Step 2: Specify the **Destination IP/Domain Name** to ping.

Step 3: Set up the various options including the ping **Packet size**, ping **Count**, **Wait time**, the **Interface** and its corresponding IP address to send the ping packet through.

Step 4: Click **[OK]** to ping the specified destination.

The ping result will be displayed in the **Result** table in the bottom half of the interface.

16.4.2 Traceroute

Step 1: Select **"Monitor > Diagnostic > Traceroute"**.

Step 2: Specify the **Destination IP/Domain name** to trace.

Step 3: Set up the various options including the **Packet size**, maximum TTL (**Time-to-Live**) value for the packet, **Wait time** and the **Interface** to send the packet through.

Step 4: Click **[OK]** to begin the traceroute operation.

The traceroute result will be displayed in the **Result** table in the bottom half of the interface.

16.5 Wake on LAN

The wake on LAN function provided in SifoWorks allows administrators to set up the system to remotely boot up specific PCs located within the connected LAN network.

Select **"Monitor > Wake on LAN > Setting"** to view a list of LAN PCs set up to be started up remotely. You can edit or delete any entry from the list by clicking the appropriate buttons in the **Configure** column.

Step 1: Click **[New Entry]** to add a new LAN PC to be booted up remotely.

Step 2: Specify the **Name** and the PC's **MAC Address**.

Step 3: Click **[OK]** to add this PC to the list.

16.6 System Status

Administrators can also view the various statuses of the system from the **"monitor"** function group. These include the status of the network interface ports, DHCP clients in the system etc.

16.6.1 Status of Network Interfaces

Select **"Monitor > Status > Interface"** to view the basic configuration information and status of the device's network interfaces. This includes each interface's **Forwarding Mode**, **IP** and **MAC Addresses**, packets received and transmitted etc.

On the top of the table you can also view the total number of **Active Sessions** currently established on the system and the total **System Uptime**.

16.6.2 System Information

Note: *This interface is not available for SifoWorks U100 devices.*

Select **"Monitor > Status > System Info"** to view the usage charts of various system resources include RAM and CPU etc.

16.6.3 Authentication Users

Select **"Monitor > Status > Authentication"** to view the list of authenticated users currently logged onto the system. The list displays the user's **IP Address**, **User Name** of the user's authentication account and the total **Login Time**. You can manually logout the user by clicking **[Remove]** in the **Configure** column.

16.6.4 ARP Table

Select **"Monitor > Status > ARP Table"** to view the ARP table stored in the system.

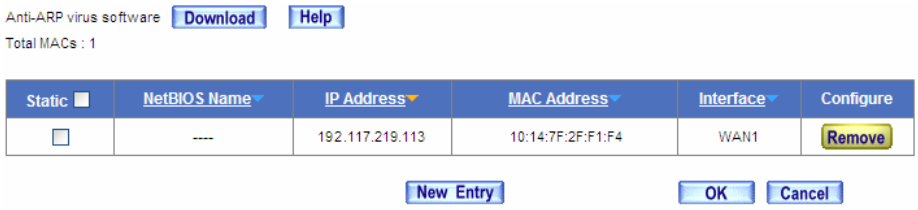


Figure 16.9

Anti-ARP virus software

From the top of the list, click **[Download]** to download the **Anti-ARP virus software** to protect the ARP table from viruses. You can click **[Help]** to view information on downloading and executing the anti-virus software.

ARP Table Entries

The total number of ARP entries in the table is shown from the top of the table.

On the table, you can view the **NetBIOS Name** of the host, **IP Address** to **MAC Address** resolution and the **Interface** through which the host communicates to the system. **NetBIOS Name** is not displayed on SifoWorks U100.

You can remove an entry from the table by clicking the **[Remove]** button in the **Configure** column.

In the **Static** column, select the IP to MAC address mappings that are to be kept static from the table. To select all ARP entries as static, click the checkbox next to the **Static** column name. Click **[OK]** to save the changes.

Adding a new ARP entry

Step 1: Click **[New Entry]** to add a new IP to MAC address mapping into the table.

Step 2: In the page that appears, enter the **IP Address** and the corresponding **MAC Address**. Also select the SifoWorks **Interface** that connects to the network where this host is located.

Step 4: Click **[OK]** to add the ARP entry.

16.6.5 Sessions Information

> ***Note:*** *This function is not available for SifoWorks U100 devices.*

Select **"Monitor > Status > Sessions Info"** to view the list of IP addresses that have established sessions with the SifoWorks system. The information listed includes

1. **Source IP**
2. the login **Duration** of the IP
3. **Total Traffic**
4. number of **Sessions** established by the source IP

You can sort the list according to any of the 4 columns. An orange arrow next to the column name indicates that the list is currently sorted by that column. A down arrow indicates the list is sorted in descending order while an up arrow indicates ascending order.

Sessions Query

Step 1: Click the icon to the top left corner of the list.

Step 2: Specify the criteria to search for.

Step 3: Click **[Search]** to begin the search.

To view specific information about the sessions established by a particular source IP, click the source IP from the list. The table lists the information of all the sessions established from the selected source IP including

1. **Protocol**
2. **Source IP**
3. **Destination IP**
4. **Port** number
5. **Time** the session was started
6. total **Traffic**
7. the policies allowing this session

You can drop a session by clicking the **[Drop]** button in the **Configure** column.

16.6.6 DHCP Clients

Select **"Monitor > Status > DHCP Clients"** to view the list of DHCP clients on the SifoWorks system.

The table displays information including the **NetBIOS Name** of the client host, **IP Address** leased by the DHCP server, the client PC's **MAC Address** and the starting and ending **Time** of the lease. Note that the **NetBIOS Name** is not displayed on SifoWorks U100.